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OUR TOWNS AND WHAT THEY NEED.

A JOURNEY through our provincial towns, and indeed it may be said all our towns, including London, leaves one with the conviction that many things must be wrong because, when all has been said, few, if any, of them give the lover of architecture satisfaction.

We are afraid this conclusion is a final one, and there are practically no exceptions unless we take what is genuinely old, like the Old Town in Edinburgh, or what appertains to the eighteenth century, such as a great proportion of towns like Bath, Buxton, and Dublin.

It is true that in most of our towns we find buildings which, taken in themselves, are noteworthy examples of architectural skill, but in the vast majority of cases they compose badly with their surroundings; being planted down without regard to their neighbours, they are, so to speak, out of place and ineffective in any general scheme.

Princes-street in Edinburgh has a great reputation, but that is largely made by the topographical situation in juxtaposition with the Old Town and Castle. The modern buildings which line it, though, in the main, of better quality than would be found elsewhere, are not, generally speaking, of outstanding merit, and certainly do not fall into any general harmonious scheme, and, as compared to the buildings facing the Place de la Concorde in Paris or the Rue de Rivoli, they are wanting in architectural quality.

Although in an old historical town we have buildings of various shapes and heights jumbled together, but frequently forming a picturesque and artistic *mise en scène*, it must be remembered in the first place that such buildings were in the nature of things usually more or less of similar heights, styles, and devoted to similar purposes—that of the private dwellings of citizens. They were also built before the days in which we ransacked every country in the world for artistic inspiration, which also was the age when the buildings in the centres of our towns began to lose much of their intimate human interest, and were relegated for more or less purely commercial uses. They were also built in times in which the shopkeeper never expected his goods to be seen from outside—a development which has produced the modern shop window. The mediæval town was possible as an artistic factor without regulation, such as we know it, but it is becoming more and more insistently brought home to us that only regulation, and that often of a stringent character, can save the modern city from being an uncomfortable and unsatisfactory mass of jarring contrasts, and, though we do not in this country take kindly to the idea of regulation, reflection will convince us that we must have it if the building of to-day is to give any satisfaction in the future.

Conditions of life in the Middle Ages helped to make the towns we admire. The necessity of security meant that the space surrounding a fortified position should be fully utilised; the same utilitarian conditions made it necessary that the space enclosed by walls should be as small as possible. No suburbs—those disfiguring additions to the modern towns—were possible, for they would be without the walls, and therefore bereft of security. None of the hideous accompaniments of modern trade in the shape of factories, advertisements, the display of shop windows were required; no railway wound its way in unpicturesquely, a hideous scar on the locality, instead of the roadway approaches being marked with quaint and often imposing gatehouses where they entered the city. All told for concentration and all for effect. How much of the charm of the mediæval town was made up out of these extraneous circumstances we do not often stay to think, but if we analyse an elevation of view of a mediæval street into its elements we shall frequently be forced to admit that it was not by the intrinsic merits of their architecture it charmed us, but by a combination of outside factors which, operating in one direction, gave beauty and completeness.

Now it is frequently hard to say where town ends and country begins; the miscellaneous welter of ill-arranged and disorderly building laid down without plan is the first signs of an approach to one of our towns. The buildings assume an urban appearance while still in positions in which the country struggles to maintain its character. The worst features of the town are with us in the shape of unfinished party walls, which may sometimes be built against, elevations which, unlike those of country buildings, are meant to be hidden, the occasional factory or works marring a district which apparently is to be in the future residential, and all the mistakes which are made by those who divide up land without a clear idea of the future ways in which it may be utilised. It may be said that hitherto since the days when rapid industrial developments became the order of the times we have begun by creating slums, and then at a later date made spasmodic efforts by planting down a few public buildings in their midst to create a city. The process is naturally as logical as that of mending a cheap dress with expensive material, and is equally satisfactory!

That a great historic past is not in itself a security against the modern tendencies can be seen in the newer portions of such cities as Oxford or Bath, while the full extent to which we have neglected opportunities can be seen in such towns as Wolverhampton, Wednesbury, Walsall, and the Pottery towns.

We are not disposed to think that what has happened in the immediate past is so much due to want of artistic instinct as to uncontrolled individualism, and we believe the remedy is more even a question requiring public and collective action than it is a matter of artistic sensibility; the latter may be said to make us feel that something must be done, but it is only by collective and organised action that improvement can be effected. It is true that many of the men who think in terms of art will try to express their appreciation of architecture by their care of the architecture of individual buildings; but what has to be brought home to our people is the unnecessary waste of spending money on buildings if they are to be spoilt by their immediate neighbours, and the harm to districts which may arise through the introduction of foreign and discordant notes in the shape of buildings devoted to special trades in residential centres and the like. The want of logical thought which distinguishes us from the Latin peoples is nowhere more evident than in our towns; we despise control, thinking it inconsistent with the genius of a free people.

The basis of the English people of to-day is not, after all, the Norman element which came to us with the Conquest, but the underlying Saxon and Danish strains which persisted throughout, and which finally brought the foreign influences to a standstill, and had by the period of the third Edward almost absorbed and dominated the conquering element. And what the artistic effect of this element was can be gathered from the cities of Northern Europe, where, in spite of occasional brilliant exceptions, the towns are little better than enlarged villages, having in them much picturesqueness, little method, and almost no grandeur.

And we have with us to-day the disciples and followers of William Morris and Ruskin, men who would treat art as if it were but a department of morals, an expression of the simple life to be produced by the individual craftsman. To such—and we have many in our midst—men like Mr. Voysey and

Mr. Baillie Scott, the exercise of method, the cultivated expression of modern civilisation in architecture are anathema. They would, we believe, if the truth were known, wish to see work of the carpenter and village smith not only dominate our villages, but would like to see the larger and more important works in our cities carried out by them. And the school or cult, as we may call it, is strengthened by such writers as Mr. March Phillipps, who, we think, uses his mastery of English expression in order to pervert and deflect the course of architectural art along wrong lines.

It is true that Ruskin, who had, despite his fanatical hatred and contempt of the Renaissance, a wider and freer grip of the situation as a whole than that of many of his latter-day followers, uttered the dictum that since the thirteenth century we had, as compared with the French, "built like rats and mice," but did not follow it up with the equally true statement that this was mainly because the old individualistic and free spirit of the Anglo-Saxon race was submerging and dominating a strain more Latin and orderly than itself.

Mr. March Phillipps obtains much satisfaction from an occasional building in the country, because it seems to him to be the product and natural working out of the mind of the individual craftsman, and adversely criticises and condemns the more formal and carefully-thought-out buildings of our great cities which give him no pleasure. But we think he carries sentiment too far and fails to analyse what he does not like, or he would be driven to the conclusion that the methods which may be satisfactory and effective as applied to a country house may utterly fail to give us what we want when applied to a great public building.

There is a type of mind well known to us which appreciates the minor products of art, while it is untouched by the greater conceptions, and this type of mind is, we feel, very conspicuous in many of our workers of to-day.

To enjoy and appreciate the smaller and lighter sides of life is a merit; to enjoy and appreciate them to the exclusion of larger issues involves a limitation of mental outlook in matters of art which we fear is essentially English.

The habit of mind which is the despair of real artists, which induces the Englishman to pick out in a picture gallery the subjects which are *petite*, homely, and pleasing, while recoiling from the representation of a battle scene or any of the great representations of tragedy in life, is apparent in much of the criticism of building and building projects.

We do not stop to analyse the effect of time or consider that our Norman castles, and we may say cathedrals, had in them little of picturesqueness when first built, that what would have struck us about our Elizabethan and Jacobean buildings originally, could we see them as they left the workmen's hands, would have been their astounding crudity and uncouthness.

Nor do we trouble to think that the greatest works in literature, the works of Shakespeare and our greatest dramatists, would not to-day please a village audience. For some reason or other a large proportion of people consider that art, especially in its architectural form, should be such as to meet with instant appreciation and understanding from the ignorant and untaught.

The mistake and misunderstanding is an immense one, and if we are weak enough to allow it to sway our ideas of what is great and small in matters of art, if we are to allow the untaught popular appreciation to be the standard we aim at, then it must once for all be admitted that the possibilities of a great Renaissance in our architecture are past praying for.

So in the great question of the laying-out of our new towns and the improvement of our older ones real progress and improvement must come from above, unlike popular government, which is too often the reflection of prejudices of the ignorant forced on their nominees from below. Real art, like the truest and best forms of government, must be imposed on the people from above.

In saying this we do not mean that the opinion and interest of the man in the street is not be to considered but ignored; but we do mean that instead of catering for ignorance we should provide a guide and standard for the people, and should not hesitate to act up to our own convictions.

The great art of France, the tradition of centuries, was even when it was produced not thoroughly appreciated by the people. Had it been so, the great historic houses of France would not have suffered in the Revolution. It was the work of generations of cultured artists and the educated men who recognised its value, and, though it suffered at the hands of the mob, it is to-day regarded as part of the world's artistic treasure.

Popular opinion can be trained, but the training is largely like that of children in the recognition of their own ignorance; the knowledge of matters which must be and always were the heritage of the few cannot be shared or fully understood by the people.

The work of our Georgian epoch is remarkable, more than that of any other period, for the clear recognition of the fact that the great and important thing was to work in harmony with one's environment, and the result is shown in many of our towns in buildings and districts which, while they may be individually of moderate artistic value, yet produce that first necessity of architecture—a sense of order and fitness. It was left to the architect of that period to show that, while a house of limited size and cost cannot be in itself a great building, a wise combination of them designed in harmony with a general scheme may be an harmonious and delightful architectural composition.

We no longer need the encircling wall for protection in our cities; but is there any real reason for building our suburban houses within a few feet of one another, irrespective of any general scheme, and would there not, in many cases, be gain and not loss in combining the gardens of closely adjacent houses in one good-sized pleasure garden for all, properly cared for at the public expense? Who among us having the choice of such houses as were built in Bath in the eighteenth century and in Croydon and Sydenham in the nineteenth would not choose the former?

And it is for us to consider whether it is not well in the interests of ourselves and our descendants to curtail the individual powers of landowners and builders to give us miles of horrible suburbs round our great towns, and to insist by wise regulation that the buildings shall be planned and arranged on good collective lines. To do so is not to curtail anyone's profit, but to recognise clearly that the ever-increasing girdle of hideous building districts round our great towns enslaves all of us by interposing obstacles which can never satisfy our artistic senses between us and the beauties of nature.

After all, if we consider the public have any opinions in such matters, we must come to the conclusion that such opinions are formed on facts, not evolved out of their inner consciousness, and we cannot be surprised if the results of what they see every day is to lead them to think that buildings are necessary evils and not possible sources of pleasure. We may go through dozens of our provincial towns from which no other logical conclusions can be drawn.

The fact that the impulse must come from above rather than be evolved from below is clearly shown by the nature of the additions in the way of suburbs and exfensions which are frequently made to our great historical towns. There is no evidence in any of them that we know of to show that the juxtaposition of old buildings of the time which our "naturalistic" school admires has any influence whatever on the local contractor or citizen. Indeed, the very presence of what is old and historical in many cases appears to deprive the man who builds of any wish to do well himself.

We are not forgetting the garden city and town-planning movements, from which we hope we may obtain great future benefit, but we think there is some danger that in our admiration for the villages of the past we may attempt to create modern imitations of them in the present, in which case we are but putting new wine into old bottles, and shall not escape the penalty of our folly. We must remember that in the great epochs of civilisation in Greece, Rome, and the Renaissance periods in Italy, France, and Spain there was no attempt made to produce picturesque effects, and that the so-called picturesqueness of much of the work of the Middle Ages has been caused by time, by uncouthness and roughness of methods—in a word by accidents which form no precedent for imitation. If our work is simple, logical, and pleasing, we can afford to go without picturesqueness, which, like sentiment, is often a dangerous attribute.

We believe, in conclusion, that the great improvement and development in the architecture of America of recent years is due not to the fact of a public appreciation of architecture stimulating those who produce it, but to architects uniting in showing the public that they are worthy exponents of a great art, and, as such, can be safely trusted. The architect, in order to occupy the position which should be his, must be in front of modern requirements, and not unwillingly following the march of civilisation, with evident regrets for conditions which are past and dead.

NOTES.

The Revenue Bill. THE building trade has once more to suffer disappointment. Owing to the opposition to Clause 11 of the Bill, which deals with the valuation of agricultural land, combined with the late period of the session at which the measure was introduced, the Chancellor has felt constrained to withdraw it, but promises to reintroduce it in substantially the same form early next session. Meanwhile the question is whether anything can be done administratively to ameliorate the incidence of the Finance Act, 1910, so that those who are engaged in building development operations may be as little prejudiced by the delay as possible. If the Government would postpone for the present dealing with valuations affecting building estates it would be helpful, and in view of the fact that the valuation of land is not expected to be finished until 1915 there does not seem to be any reason why this class of valuation should not be left over until next year. It is a misfortune to a big industry when it becomes the shuttlecock of party politics, and the Chancellor of the Exchequer might well, under the circumstances so well known to him, show his sympathy with the trade by doing everything possible administratively to make this unavoidable delay in giving effect to his intentions as little onerous as possible to the building trade.

Office of Works and New Board of Trade Offices. WE are glad to be able to announce that the Office of Works are inviting architects to submit designs for the new offices to be built for the Board of Trade in Whitehall Gardens. The whole of the houses in Whitehall Gardens have been acquired up to the grounds of Montagu House, the residence of the Duke of Buccleuch, and the site of the present premises will also be occupied by the new offices. The new buildings will have a frontage to the Embankment of about 350 ft., another to the Horse Guards' Parade of 300 ft., and one to Montagu House of 208 ft., a space being left between Montagu House and the new buildings for a road to the Embankment. The whole of the vacant land in front of the houses in Whitehall Gardens is to be built upon, as well as nearly one-third of the square in front of the present offices. The building line will be a continuation of Whitehall Court, and this will leave a vacant space of about 150 ft. deep, which will probably be laid out as gardens. It is proposed first to demolish the houses which have been acquired for the extension of the offices and to build on their site offices for departments already accommodated in the present buildings. When the complete scheme is carried out it is hoped to accommodate in the new buildings the eighteen or twenty departments of the Board of Trade now scattered over many parts of London. The building will be of Portland stone, and probably of a height of four or five stories. We trust that this important competition will evoke an ample and satisfactory response from the architectural profession, as it should do.

Winchester College Chapel. IN the *Times* of Wednesday last Mr. Arthur C. Benson, writing from Magdalene College, Cambridge, has an interesting letter on the windows of Winchester College Chapel. He says :—"I do not for an instant question the excellence of the 'copies' which Mr. Caröe hopes to substitute for the present glass, though, indeed, I do not quite know of what they are going to be 'copies'; there are three panels of the original glass at South Kensington, some similar glass at New College, and the unfortunate windows themselves, which Mr. Caröe calls caricatures, plagiarisms, and atrocities. In what sense can any copies be produced? . . . However good it may all be, it will still be what is ordinarily called a 'fake.' It is an attempt, more or less, to reproduce the effect not of the old glass, but of what connoisseurs think the glass might by this time have looked like. Now this sort of reconstruction seems to me in the highest degree uninteresting. There is something, not much, to be said for destroying old work and substituting original work; the mediæval builders did it freely, but I do not think that there is anything to be said for substituting one imitation for another. . . . For my point is this, that taste is a very fleeting and unreliable thing, while historical continuity and traditional interest are not. I do not myself think the present windows ugly, and I think them extremely interesting and characteristic. The only safe rule, it seems to me, considering the perpetual fluctuations of artistic taste, is not to remove artistic decorations at all. . . . Almost everything that has ever been removed in a spirit of good taste by purists has come to be regretted, and if one can but dare to leave any decoration long enough, it seems sure to come into favour again. For a time it is an atrocity. Then people say they don't really mind it very much; then they say that it has a sort of character of its own; then it becomes quaint, then fine, then beautiful, and finally sacred! That seems to be the evolution of taste." There is much point in these remarks, which may be commended to all restorationists.

Liverpool Housing. AN American architect writes to the *Liverpool Courier* a letter in which he expresses great admiration of the work which the Liverpool Corporation have done in the direction of the housing of the working classes. As he puts it, many cities have demolished slums and made parks without a thought of where the occupants of the demolished dwellings could live. Other cities have pulled down slums and erected dwellings the rents of which could not be met by the dispossessed poor; but the Corporation of Liverpool have seen that the people in the cleared areas should have first choice of the new accommodation provided and at the old rents. What strikes the writer most about the new Liverpool multiple dwellings is the communicating stairways, which are open to the air, and he says it would be well for every city, whether it has a housing problem or not, to require that in all cases where three or more dwellings are combined under the roof such staircases should be made obligatory. The advantages of such staircases are obvious and apparent, as the shut-in interior staircase may be a ready means for the spread of infection from dwelling to dwelling, and the writer contrasts what has been done in Liverpool with the state of things obtaining in New York, where closed staircases are in many cases a feature, and an especially bad one when the great height of buildings in New York is considered. There is, however, one class of buildings devoted to the use of the poor in which New York and many other American towns can give us a clear lead, and that is in the type of baths for the use of the poorer classes of the population.

Cottages and Tenants. AN interesting article in the *Morning Post* gives an account of a housing scheme carried out by the Billericay Rural Council in Essex. Some houses put up by the Council, the rents of which are 4s. 6d. a week, have failed to attract tenants, and the *Morning Post* ascertains that this is due to three main factors. The first is the rent, which is beyond the means of men whose weekly earnings do not exceed 17s. a week, which is an easily understood reason and one which no amount of argument can well dispose of. The second is one which is worthy of notice—the fact that the houses are built in a row, and the Essex labourer, unlike his fellows in the North of England, objects to them as destroying the privacy he values. Then the houses are not liked because they have no bow windows, a feature which the Local Government Board considers to be useless and involving an unnecessary expense; while a further objection seems to be to the use of casement windows instead of sashes. We can thoroughly understand and sympathise with the first two objections; the remaining one appears to us to be founded rather on prejudice than on reason, but in our lives we frequently find that such objections are more obstinate and deep-rooted than those which are founded on the rock of fact. It is useless in life to try to satisfy people with what we think they ought to want; it is necessary frequently to give them what they want themselves.

Railway Workers. A MEETING of railway workers of all grades was held at Crown Buildings, Saltley, Birmingham, on Monday last, when Mr. Mark H. Judge delivered an address on "The Railway Strike of 1911," in which he pointed out that it had not been without satisfactory results both to railway men and the public. On the vexed question of "recognition," the outcome of the strike had been an amended scheme of Conciliation Boards, which gave the men a free hand, and the members of the Boards were at liberty to select a secretary from any source they thought fit, so that if desired a trade union official could be appointed. The following resolution was moved :—"That in the opinion of this meeting of the Birmingham branch of the National Society of Free Workers, Ltd., experience has shown that the railway Commissioners of 1911 were right when agreeing 'to make any scheme of conciliation effective there should be no organised stoppage of work until the conciliation machinery has been exhausted. No encouragement or assistance should be given to either side refusing to abide by the settlements during the period of their continuance, and full and ample protection should be given to those who desire to observe them'; also, when they further said, 'Men have the right to determine their engagement by giving a lawful notice, but in the exercise of their freedom in this respect they should not, in our opinion, be permitted to incite or coerce by threats or any form of intimidation men who desire to give their labour'; and this meeting protests against the attempts of the National Union of Railwaymen to coerce their fellow-men into their union." The resolution, we are glad to know, was passed unanimously, and we can only hope that similar meetings wil be held and resolutions passed in other industrial centres. Evidence is accumulating of the existence of considerable discontent among railway men, and if similar resolutions can be carried unanimously by other bodies of railway and workers of all grades a triumph of reason will have been obtained.

Our "Architectural Schools" Number. THE issue of the *Builder* to be published next week will be a special issue devoted to a large extent to the work of students of the Architectural Association School of Architecture, the Liverpool School of Architecture, the Manchester School of Architecture, and the new atelier recently opened by the Beaux-Arts Committee in London. The issue will contain extra inset illustrations and many illustrations in the text, while the work of the various schools will be described in each case by the responsible head of the school. The issue promises to be a specially interesting one, and will show the character of the work being carried on by the students of the day.

FORTY-FOURTH ANNUAL EXCURSION:

ROUEN AND DISTRICT.

OUT of four occasions during recent years upon which the Architectural Association have visited "foreign parts" this is the third time that France has been chosen, and the second that the ancient territory of Normandy has been the favoured part. Englishmen seem always to have had a leaning to travel in this district, whether for the simple reason that it is nearest to our own shores, or because it is, as John Evelyn found it, "very like England," or, as a later traveller of 1759 describes it, "having formerly been so nearly allied to this kingdom, particularly deserves the attention of an English antiquary." This latter gentleman goes on to say, in describing one of the best-known mansions of Rouen, "when or by whom this house was built I could not learn; but heartily wish the whole was thoroughly examined by some learned antiquary who understands drawing; a most necessary and desirable qualification in those who travel." This wish has certainly been abundantly gratified since, for from Pugin and Le Keux, and J. S. Cotman, down to the present day hardly a year has passed without witnessing some addition to the number of books on Normandy. But the wearisome reiteration with which writers and artists have dwelt upon the thrice-told tale of the mediæval beauties of Rouen is most disappointing to one seeking information about later work. As Professor Simpson has recently written, "The churches and houses of this period (the full Renaissance) receive scant description in guide-books, are frequently entirely unmentioned, but they are well worth seeking and better merit attention than earlier examples, possibly more 'picturesque,' which find a place in most sketch-books."

The annual excursion of the Architectural Association reaps great benefit from the scouting work performed by the Camera and Sketching Club during their annual foreign trip, when, equipped with bicycles, boundless energy, and total disregard for guide-books, many useful finds are generally made, to be subsequently embodied in the programme of more formally-prepared arrangements of the senior excursion.

The party assembled at Waterloo Station on Saturday, August 9, and crossed from Southampton to Havre by the night boat. A comfortable crossing was experienced, but, owing to two hours' delay at starting, the arrangements on landing were quite upset, and it was not until 11 a.m. that Rouen was reached. No official programme had been prepared for the first day, but, owing to the fact that each succeeding day's arrangements until Saturday involved an early start and late return, members generally took the opportunity of acquiring a nodding acquaintance with the features of Rouen, a formal introduction being reserved for Saturday.

The city of Rouen, the Rotomagus of the conquering Romans, and subsequently in turn "the most southerly city of a Norman Duke's possessions, then the central fortress of an Angevin Empire that stretched from Forth to Pyrenees, then a northern bulwark for the kings of Paris against the opposing cliffs of England" at the present day, as capital of the Department of Seine-Inférieure, the Manchester of France, and the seat of an archbishop, still maintains a very important position. Situated at that point in the course of the Seine where it ceases to be navigable by sea-going vessels, and in a position of great natural strength, its importance may be readily understood—especially in the Middle Ages, when such sites were most sought after for the placing of towns. Its present-day prosperity rests on its manufactures; it is a live city, not living upon the memories of its dead past, albeit the ubiquitous Baedeker affirms that it is the richest of French cities in mediæval architecture, and as such it receives a yearly influx of tourists probably second only to Paris. Frankly, the first impression afforded is one of surprise that this should be so, and even of doubt as to the preponderance of mediæval work mentioned. The cathedral, the churches of St. Ouen, St. Maclou, and St. Vincent, and the Palais de Justice are, of course, readily apparent, and of world-wide fame, but the streets of the city have not that interesting recurrence of architectural episodes which many another French town less favoured by tourists can boast. With few exceptions, the mediæval work of Rouen dates from after the expulsion of the English in 1449, but, apart from the great buildings above cited, a round dozen or so of other churches and a few house-fronts re-erected in the court of the Musée, the buildings prior to François I., are adequately described by the eighteenth-century visitor before quoted as "mostly built with plaister, and a great deal of timber running upwards, downwards and crossways." Of course, a detailed inspection discloses a great deal of interesting work, but the city as a whole makes a disappointing impression on the newcomer. Particular description is reserved for the account of Saturday's "conducted tour."

First Day—Monday.

Owing to the proved advantages of motor traction, that method of travel was adopted for all the country trips this year. The first outing was projected in a westerly direction, a total distance of nearly 60 kilos being embraced. The course of the Seine was followed to Croisset, where a picturesque farm provided the first item. A scattered series of buildings—evidently the remains of a considerable establishment—dotted about a rather untidy farmyard in a manner which defied all attempts to evolve a coherent reconstruction, is the best description which can be given. That the place was once of some importance is evidenced by the existence of a fine colombier—a privilege of high estate. This provided perhaps the most interesting detail. The building, which stands entirely isolated, is octagonal, with a conical roof, the circular plan being corbelled out from the octagon with simple *naïveté*. The walls are of brick with stone base, quoins, string course, and corbelling, the mouldings having flamboyant profiles, though the conical tile roof is surmounted by a charming little Renaissance lead finial terminating in a dove. Several of the other buildings, which are of a fragmentary nature, possess interesting simple roofs and picturesque timbering, while a fine stone-built barn bears a defaced coat-of-arms—apparently sixteenth century in date—above the entrance. Guide-books ignore these buildings, and nothing could be learnt of the former owners.

Pigeon House: Ferme du Colombier, Croisset-sur-Seine.

At the next place—Canteleu, on the plateau overlooking all Rouen—interest centred in a dignified house said to have been built by Mansart in 1649. The design is one which was aptly summed up by a member who remarked that "it would draw out well"—it is interesting but hardly inspired.

The house consists of a central pavilion with wings, the pavilion, which contains the hall and salon, being faced entirely with stone, while the wings have a rather effective disposition of brick and stone. It is worthy of remark that the walls gather in noticeably at each string course. The sculptured ornament of the pediments on the north and south fronts and at the west end suggest a date rather after that given. The interior was decorated in the Pompeian manner about seventy years ago, and has a rather gaudy effect.

There is a church at Canteleu with a charmingly-proportioned flamboyant western tower, the lowest stage of which forms a fine entrance porch; but beyond the barest inspection no attention could be paid to this. After leaving Canteleu a pleasant drive through pine woods and over rolling open country brought the party to Duclair and lunch—a very protracted business enlivened by the unfortunate discovery that the passage of the river by ferry at this point could not be made by the motor A hasty change of programme thus became necessary, the Château de Quatre Vents, which should have been the next item being perforce abandoned and the river crossed (minus motor) lower down at Mesnil, from whence the Château de Malartic at Yville was reached on foot. *En route* a brief stay was made at the ruined Abbey of Jumièges. This was founded in 936, dedicated to St. Pierre, and the present nave dates from 1040. It is a noble example of pure building, the west front, extremely lofty and absolutely unadorned as high as the spring of the gable (where the two towers blossom into comparative playfulness), being particularly impressive. The buildings were maintained until the Revolution, but have since gone rapidly to decay, and little but the nave walls and western towers, the transept end and one chapel of the chevet and the base of the main walls now remains of the church. Its effect with the cavernous barrel-vaulted western gallery above the narthex must have been remarkable. What appear to be traces of the earliest work, with dumpy columns carrying coupled arches on truly Byzantine dosserets above pseudo-classical capitals, remain in a portion of the monastic buildings adjoining the south transept.

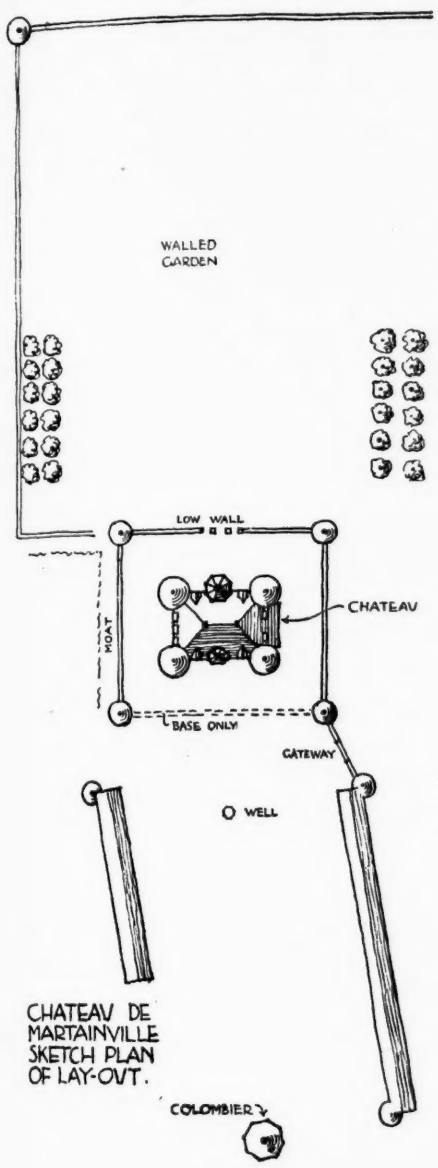
The Château de Malartic, where the party was most courteously received by Madame le Comtesse, is an authentic example of a country house of moderate size by Jules Hardouin Mansart, singularly complete and satisfactory. It was built in 1717 for M. de Lanoé, Conseillor and Secrétaire du Roi, the gardens having been laid out from the designs of Le Nôtre.

The entrance front faces inland, a central one-story portico very slightly advanced between the two projecting end wings having Ionic columns, while the remainder of the design depends entirely on fenestration and the proportion of the stories for its effect. It is all most rational in design, excellent in workmanship, and extremely refined in detail, forming a worthy example of the work of its author. The entrance front faces a clearing in the steeply-rising woods behind, while the opposite front, in which the wings are only slightly accentuated, overlooks the Seine some mile or so distant and hundreds of feet below by a broad grassy belt bordered by poplars. This river front has a central pediment, and the roof pitch is raised in pavilion form above the wings. Ornamental detail throughout is confined to varied enrichment of the centre of each window-head (hardly keystones), and carving in the pediments of the narrow ends of the house. In these the fact that this is a country house is symbolised by the introduction of dogs' heads, boars, grapes, wheat, oak leaves, and similar hints of rusticity. The interior, though devoid of other than the simplest detail, is equally satisfying and thoroughly liveable—altogether a most enjoyable and instructive visit. The Church of Sahurs, which should have been visited on the return to Rouen, lay so far out of the road that this had also to be omitted, and the journey made direct, following the course of the Seine. Ideal weather

favoured the party on this first day of the excursion, and how much that means those who participated in last year's excursion will realise.

Second Day—Tuesday.

An easterly direction was taken on Tuesday, the first halt being made at Longpaon, where is

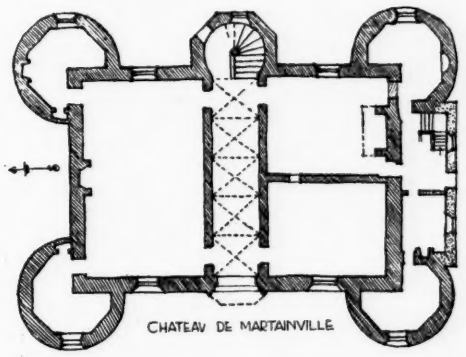


CHATEAU DE MARTAINVILLE SKETCH PLAN OF LAY-OUT.

a fine late flamboyant church of very spacious internal effect. Situated under the shoulder of a lofty down, against which the western tower almost abuts, the plan is somewhat unusual, being almost as broad as it is long. It consists of an unvaulted nave, 35 ft. wide, with two aisles of 24 ft., all of equal height, and a series of vaulted chapels contrived by the common method between the buttresses, and extending to the full height of the arcade. A shallow apse projects eastward towards the street. The arcade is of six bays, having deeply-moulded arches resting on circular pillars with carved caps, in which Renaissance and Gothic foliage are superposed. The arcade is repeated between the aisles and chapels, so that the effect is that of a five-aisled church. The second bay from the east is a very wide one (there is no proper transept), and opposite this are two noble portals. The tower stands at the north-west corner. The interior suffers from the loss of most of the original tracery, and the presence of some particularly vile glass, but its spacious effect makes amends for much. Some rather pleasing late Renaissance stalls are the most interesting of the fittings. The tower is incomplete and covered in by one of those picturesquely contrived slated caps so frequent throughout Normandy. The portals are also mutilated, and what appears to have been an interesting feature—a western vaulted porch extending from the main wall to the opposing hillside—has vanished, or perhaps was never completed. A punning inscription in Renaissance characters decorates the tower, consisting of the word "Long" and a peacock. The chapels are curiously covered by a series of very steeply-pitched pavilion roofs.

At Ry, the next halting-place, was seen a church affording a complete contrast to the last one. The simple building masses up rather finely from the village street, a boldly-projecting south transept and short, low sanctuary supporting a very low Norman tower (just sufficient to stop the nave and transept roofs), carrying a slender, slated spire. Internally the work is of the rudest description, save for the rather fine roofs of the beam and king post type, with plastered barrel ceilings. The plan consists of a nave with north aisle, divided therefrom by an arcade of four bays, the south transept, and a shallow sanctuary containing a fine carved altar. The chief interest of the church is concentrated in the south porch—a timber construction of most elaborate detail, early Renaissance in character. It is a half-octagon in plan, lengthened by an extra bay on the straight sides of attachment. Each bay is divided in three between stout angle posts by slender moulded and enriched balusters bearing diminutive arch heads with typical scroll and ribbon tracery. The southern side is entirely open, spanned by a segmental head, below which depends some typical François I. ornament. A steeply-pitched slate roof surmounts the porch, finished internally with a timber barrel ceiling of elaborate detail, entirely mediæval in character, though presumably coeval with the remainder of the porch.

After an excellent lunch at Ry the morning's route was retraced as far as Martainville, where in the sixteenth-century château, now a farmhouse, but protected by the Government as an historical monument, the most typically French building encountered was inspected. The structure is fortunately quite untouched, and is in exceedingly good preservation. It


CHATEAU DE MARTAINVILLE

consists of a rectangular block, with a steep pavilion roof and four circular angle towers with conical roofs. In the centre of the east front is a lofty octagon turret containing a circular newel stair and roofed with a still steeper slated pyramid, terminating in an open lantern, while the west side, which is the entrance front, has a richly-detailed oriel corbelled out above the entrance and developing above the main eaves into an octagonal machicolated turret roofed by a concave pyramid. All these roofs have elaborate lead finials, and in addition to these a most varied series of lofty brick chimneys serve to make up a group of extreme picturesqueness.

The main block is three stories in height, the walls being of brickwork richly diapered in grey headers and with stone dressings, strings, eaves-course, and dormers.

The windows, which are virtually confined to the east and west fronts, present beautiful and varied flamboyant detail, the oriel above the entrance, which forms the apse of a tiny chapel, being especially rich. The north front shows wall and chimneys alone and is sternly impressive, while the south front has received an addition of later work containing an oak open newel stair resembling English Elizabethan work. The traces of lay-out are very extensive (see sketch plan), and as most of the conical-roofed turrets are in existence an excellent idea of the original effect can be formed. A lofty colombier opposite the entrance is a noteworthy feature.

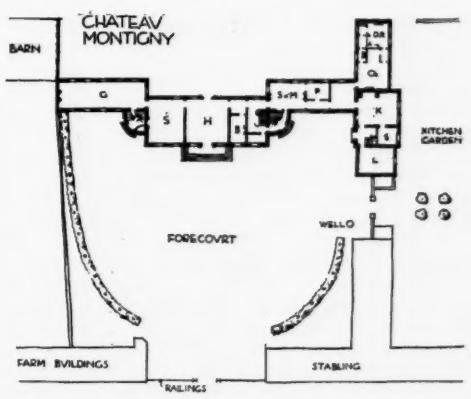
Internally, the plan is simplicity itself; a long vaulted corridor extends from the entrance on the west to the main stair on the east, dividing the ground floor into two parts. A similar division persists above, where the chapel forms the western end of the central compartment. There is a considerable amount of interesting detail, not by any means confined to the early work, but ranging over all periods of French architecture. The manner in which the feudal corner towers were forced upon the plan is amusing; this was a tradition that died hard.

It had been confidently predicted by a member familiar with the district that the 1913 excursion would in future be known as "the dovecote excursion." On arrival at Boos, where, amid the remains of a fine thirteenth-century manor, the *pièce de résistance* was found to be yet another colombier—the fourth—point was given to the prophecy.

This example, sixteenth century in date, is certainly the prince of dovecotes. Like the others seen previously, it is octagonal in plan with a conical roof, borne by a circular flamboyant moulded cornice interpenetrating the octagon. It is, however, differentiated from the others by its structural polychromy. Upon a stone base stand two stories of brickwork, with stone quoins and strings, variously patterned and diapered in coloured glazed bricks, red, green, and blue-black predominating. The lower story is simply patterned in square checks, lozenge checks, zigzag diaper, and such like devices in red, black, and dark green, but on the upper story each face is divided by moulded brick ribs or mullions into arched panels in each of which some variety of chevron, basket, or diaper is formed in red, green, blue, and buff bricks, with several introductions of pattern tiles, and alternating brick sunk trefoils and quatrefoils in the heads of the topmost panels. This building is, appropriately enough, a national monument. Beside the dovecote there is a good buttressed barn. The hall of the manor is also reasonably complete, though divided by a later floor cutting the heads of its simple foiled tracery windows. It has a fine wagon-shaped roof with tie-beams and king posts, and retains the base and part of the octagon shaft of a contemporary chimney. The walls are of flint with stone dressings, and banded flint and stone in the bold end gable. Around the manor is a fine wall of diapered brickwork, bearing inscriptions in dark headers, which are not all now legible, though the sacred monogram can be readily made out. On the return run to Rouen the magnificent views over the Seine Valley were very enjoyable. The weather again was all that could be desired.

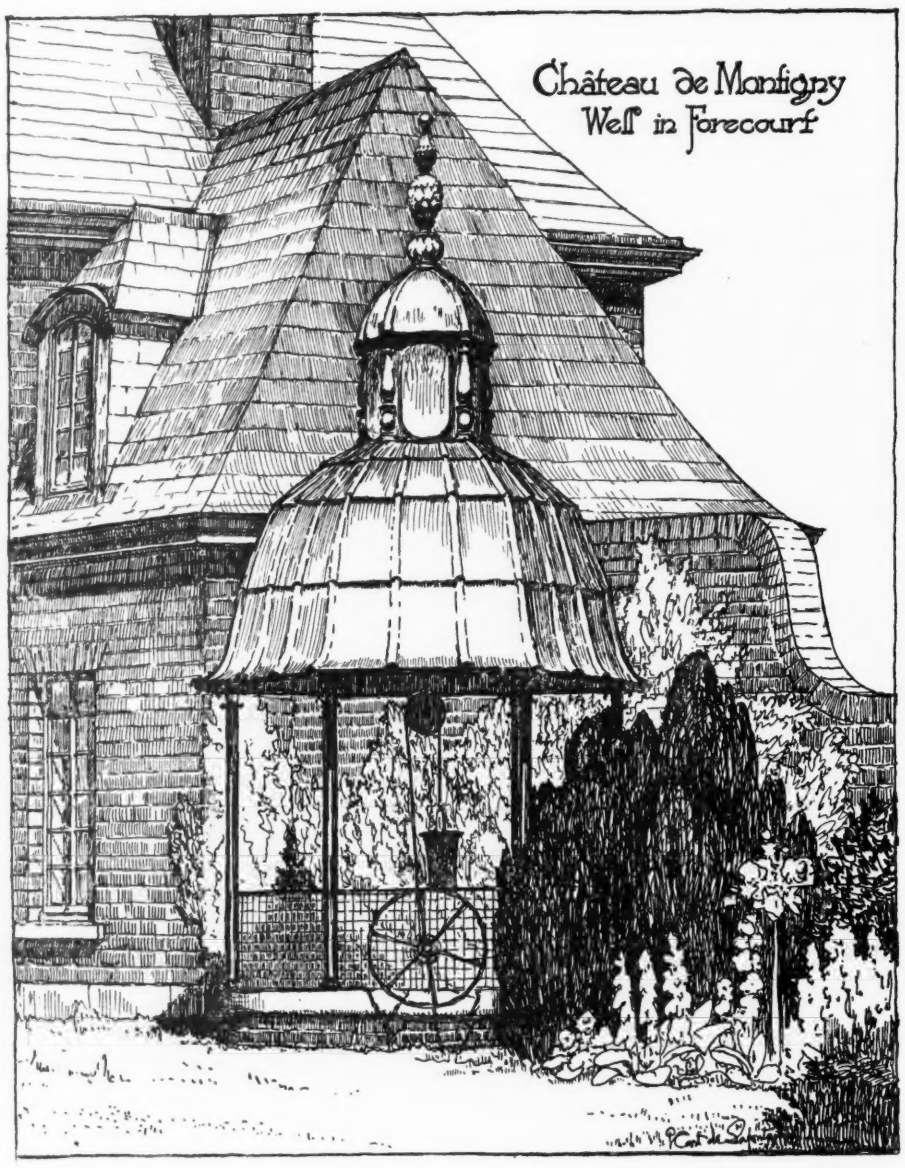
Third Day—Wednesday.

The first place visited on this day was Montigny, where, by the kind permission of the owner, M. Vaussard, an interesting Louis XV. château was inspected. The building is said to stand on property which formerly belonged to the adjoining monastery of St. Georges de Boscherville, of which this was a grange, and remains of earlier buildings, apparently of Henri IV. and Louis XIII. date, are incorporated with the later house, of which, however, the effect is entirely homogeneous. The plan is a clever one, and so disposed as to produce the utmost effect of size for its actual extent, both internally and externally (see sketch plan), but in the English climate, at any rate, it would be very cold. It will be seen that the house is extremely shallow and wide-spread, while a complete vista is possible from end to end. The original lay-out is most extensive and well preserved, notwithstanding



an apparent later partial introduction of the *jardin Anglais* on the garden front.

The main block is two stories in height, with a frigid and unpleasing mansard with dormers, which it may be hazarded is a fairly recent addition. The side wings rise only one story in apparent height, though that on the right hand of the entrance front contains a



low upper story or false mezzanine. This wing joins up with a portion of the older château, in which are now the kitchen quarters. The older portion of the house is constructed of diapered brickwork and has a lofty pavilion roof. Portions of the farm buildings and boundary walls also exhibit diaper and checker work in brick and stone, but the main building is constructed of light-red brick in thin courses with warm yellowish stone base, quoins, and dressings, and a sparing use of very refined ornament. A curious feature in a building of its date and precision of style is the use of irregular stone quoins. In the entrance court is a well with a picturesque lead cupola said to be of seventeenth-century date, but obviously almost entirely remade.

After leaving Montigny a brief halt was made at Hénouville Church, a rather bald little flamboyant building whose most interesting feature was a curious experiment in tower terminations. Starting as a concave octagonal stone spire with four square panelled angle pinnacles, it terminates abruptly after rising a few feet, with a little leaden cupola. The effect is not so distasteful as might be expected from this description.

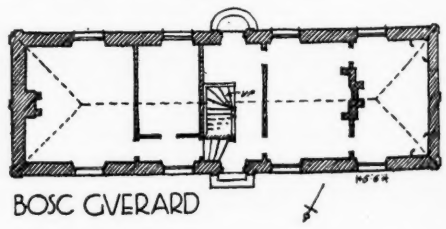
A second visit to Duclair was necessary for lunch, but, as permission to visit the Château du Taillis was refused by the owner, a change of programme after lunch became necessary, and it was decided to visit the Abbey Church of St. Georges-de-Boscherville (1050-1066), at which a flying call only had been intended. This church is a magnificent and complete example of Norman work on normal lines, founded by Raoul de Tancarville, Grand Chamberlain to William the Conqueror. The nave is of eight bays, with compound piers and vault shafts; there is a fine lantern tower, a short transept of two bays each way, with the main arcade returned across one bay from the end as an open gallery similarly to the transepts of Ely and Winchester, and diminutive apses opening eastward below the gallery vaulting. The choir is two bays in length, with a short solid bay interposed between the main arcade and the unaisled apse. Above the main arcade is a low blind triforium of four arches in each bay, surmounted by single clerestory windows. The clerestory does not continue round the apse, where two tiers of windows occur, ranging with the arcade and triforium. The whole church is vaulted, all the aisle vaults and the high vault of the choir being groined with heavy, square-edged semicircular transverse arches between the bays, and the nave vault ribbed throughout with pointed transverse ribs and semicircular diagonals. The apse is covered by a ribbed semi-dome, and the lantern by an octopartite vault. The church is devoid of interesting fittings, and is spoilt in appearance by white-wash and red-lined jointing, but it is a particularly fine example of unaltered Norman work, and the choir vault is one of the few of its type which was attempted or has survived.

Most of the early conventual buildings have been destroyed, but the fine vaulted chapter-house (1175-1200) adjoining the north transept survives and contains some very rich work. It has had two upper stories of Renaissance work superposed upon it, and has been curiously encased in the later addition at its east end. The east end of the church, with its short transepts and choir and sturdy central tower covered with a lofty slated broach, is very impressive, and the west front is also a fine one, though the aisles terminate rather lamely and the lofty square pinnacles of slightly later date than the rest of the church rather exceed as pinnacles and fail as spires, particularly when seen from other than the direct west view.

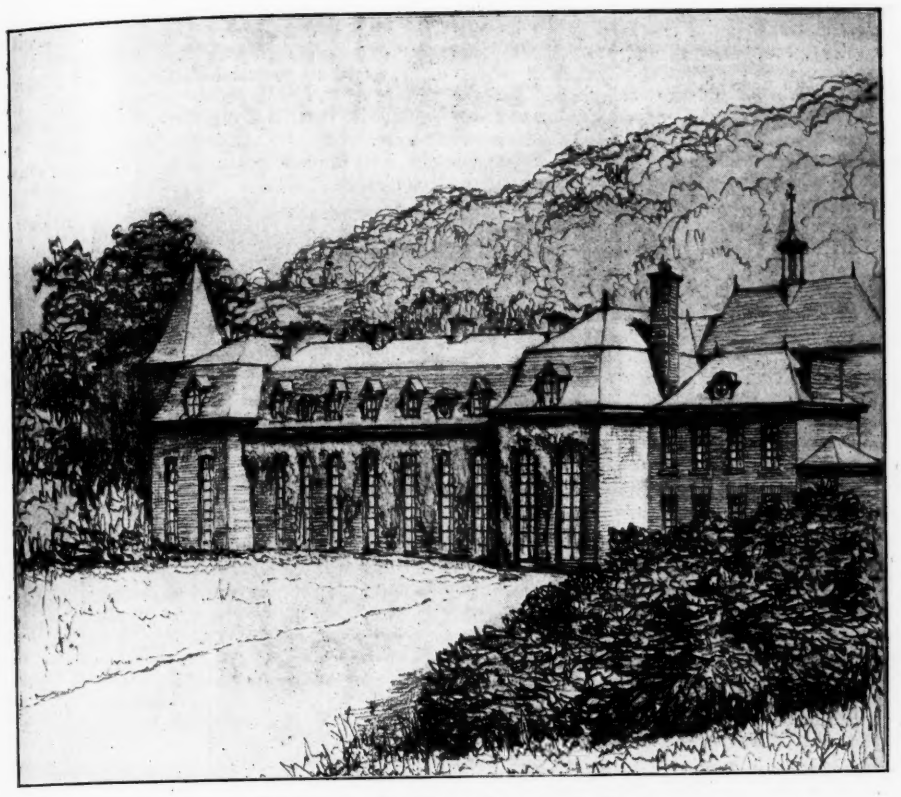
At the Château de la Rivière-Bourdet, at Quevillon, the party was kindly received by the Marquise de Montholon. A mediæval château stood on this site, and it is probable that the roof and a considerable portion of its walls are incorporated in the main block of the present building, though only a trifling fragment of flamboyant moulded jamb is visible as proof. The external form of the present house and its architectural detail are of the Louis XIII. period, but having been originally constructed of a soft white stone from Caumont, resembling clunch, most of the mouldings and enrichments and no small part of the wall surface have been renewed—probably more than once. Here is yet another colombier—and a particularly fine one—dated 1668, and this may be about the date of the wholesale remodelling. The plan is an extended one (see sketch), and differs from the others seen in having an entrance court enclosed on three sides by wings of the main building. It will be noted that it works out rather cleverly as a symmetrical design on either front, by the aid of the corner pavilions, which again recur as a distant echo of feudal planning. In this case they have ogee-curved roofs, and are entirely subsidiary to the main roofs. The spacing of windows on all the fronts is curious and rather restless owing to the great variety of grouping and forms above the main eaves. On the north of the forecourt is stabling erected towards the end of the eighteenth century. Facing the entrance is an avenue cut through the Foret de Roumare, by which the return towards Rouen was made. This is a part of the original formal lay-out unhappily replaced by a *jardin Anglais*, but shown on a map of the estate prepared in 1733 and preserved in the house. The weather on this day had several times looked threatening, but rain held off.

Fourth Day—Thursday.

At the first place on the programme, Bosc Guerard, the little church, though utterly devoid of interest internally or from any but one point of view outside, yet makes amends by the picturesque piquancy of that one view. Standing close by the roadside, the grouping of its very low and broad west gable of chequer-work in flint and stone, with a sturdy tower and stair-turret capped by another variant of the slate broach on a louvred base, is eminently sketchable and suggestive. The tower stands



on the north side against the junction of nave and chancel. The west front, whose single gable is pierced only by a low elliptical-headed doorway covered by a slated pent roof on brackets, and a small two-light curvilinear window well above the springing, is a most pleasing bit of proportion. The Manor Farm at Bosc Guerard is a lofty rectangular block of two stories on a low basement. The base is of squared flints and stones of even size arranged in chequer patterns and finished by a stone band, which forms the sill course of the ground-floor windows. Above this the walls are of brick with stone quoins, the brickwork evenly diapered, and the windows arched with camber arches. The first floor is marked by another stone string, and is diapered in more open form, while above is an entablature with stone architrave and cornice and brick frieze pierced by a series of small circular openings ventilating the roof space. The roof is a very lofty hipped one, with a lead ridge and finials. The date 1619 is inscribed on the architrave—altogether a curious and unusual building of singularly bold scale for its actual dimensions. Internally the chief features of interest are a large open fireplace with cast-iron back and a coarsely detailed dog-leg stair of great massiveness. Considerable interest was



Château de St. Germain sous Cailly.

taken by some members in the roof construction, which was fully accessible up to the ridge. M. Fauvre, the farmer, was very kind, and gave the party an opportunity of sampling his most excellent cider. *En route* for lunch, at Cleres, a brief halt was made at Monville, where is a nice little church with some good fleur-de-lys tracery in the chancel windows. The château at Cleres appeared very attractive so far as could be judged by gazing enviously over the churchyard wall, a nearer inspection having been refused. It evidently embodies work of many dates—squared masonry, rubble-work, brick and stone chequer, half-timber, brickwork, tiles, slate and leadwork all being visible in the random and picturesque group fronting the church. In the grounds are also the ruins of a feudal castle. Some picture-postcards obtained in the village created an impression, however, that "distance lent enchantment."

At Cailly the first halt was made at a small Norman church, consisting of aisleless nave, transept, central tower with square, slated spire and apsidal-ended chancel. The church groups well from the east, but all the interest has been removed from the interior by drastic rebuilding. The Château de Cailly consists of two low ranges of brick buildings, each a single story in height, with a mansard roof and dormers, facing one another on opposite sides of an open grass court enclosed by a low breast wall with iron gates on the two remaining sides. The two ranges of buildings are similar in design, though one is the stable block and the other the house, and (entered as they are on an axis which, so to speak, isn't there) the idea suggests itself that they are the wings of some grander scheme, the main block having either been destroyed or never built. Very extensive vistas have been formed through the woods, not only on the cardinal points but intermediately, all much in excess of the scale and grandeur of the buildings, and seeming so to lack point. The buildings appear to be of seventeenth century date, but are devoid of detail, though excellent in proportion—in fact, the best examples of a late vernacular encountered. Corner pavilions at the ends of each wing again echo the feudal plan. The interior was inaccessible.

The water mill and dovecot at Grand Tendos, the next item on the programme, turned out to be a subject for a pleasant water-colour sketch and little else, and some of the members elected to retrace the route to a roadside farm near Fontaine le Bourg, which had been noticed in passing. Though a much smaller building, this recalled the Château at Martainville. The main building consists of a rectangular block with steep-pitched pavilion roof and two attached circular turrets at opposite ends of the outer face, with concave conical roofs capped by finely-wrought openwork crocketed lead finials. Attached to this three-story block, which is of diapered brickwork, on a stone base, is a low range of farm buildings standing on an extension of the stone base round two sides of a quadrangle and embodying on the outer face (which rises direct from the water) the brickwork and windows of work coeval with the lofty turreted house. Some of the detail is very good flamboyant, especially the lower part of a vanished dormer central on the outer front, which has two spirited little dragon corbels. Scattered about the precincts are traces of an extensive lay-out, including a length of garden wall with two little conical-roofed turrets in flint and stone chequer, and a detached rectangular building of similar workmanship with a steep-hipped roof, and bearing a defaced coat-of-arms above its broad elliptical-headed gateway. A brick colombier (yet another !) is also visible across the road. The return to Rouen through hilly forest scenery was very pleasant, and the weather throughout the day showed a welcome return of brightness.

[*** The remainder of our report will be given next week.—ED.]

EARLY EXAMPLES OF TOWN PLANNING IN THE CITY OF EDINBURGH.*

IN most striking contrast to the closely-piled and many-storied blocks of the old town is the straight, rectangular plan distinctive of the new town, with its wide thoroughfares, its lavish allotment of land for gardens, and the stately edifices flanking its principal thoroughfares. It is, as it were, the swing of the pendulum from the congestion resulting from close aggregation of people who inhabited the pent-up closes of the ancient Royal Mile—known as High Street and Canongate—to that of distribution of the people which resulted from the planning and development of the new town. But this change in the domestic and social conditions of the people was not attained without much physical change in the city's natural features. Thus, between the old town (represented at its two extremities by the Royal Palace of Holyrood on the east and the Fortress or Castle crowning the rocky summit on the west) and the new town, then undeveloped, a "gulf was fixed" in the presence of the Nor' Loch Valley—a deep hollow situate at the base of the Castle Rock and thence sloping eastwards towards Calton and Canongate. The ridge of this slope has been not inaptly called "the spinal cord" of the city.

The draining of this Nor' Loch about 1763 was the first work towards the reclamation of this marsh and the preliminary step towards its present-day service as a public park and pleasure-ground, known as Princes-street Gardens. But it was essential in the development of the new town that this valley should be spanned, and thus unite the old town upon the south with the contemplated new town upon the north. Hence came the first "North Bridge," commenced in the year 1763 and opened for traffic, after a chequered constructional experience, in 1772. The north side of the city being thus linked up to its ancient civic centre in the High-street the territory upon the north became ripe for the founding of a new city, or rather for the expansion of an ancient city upon new lines. Thanks to civic foresight and the natural prosperity of the city as the Scottish capital right well has this new town developed to its present-day importance. The land was held principally by the City Corporation and the George Heriot's Trust. This ownership of the land by public bodies facilitated the steps which resulted in the adoption of a plan upon which this new town should be laid out, commencing with the plateau of Princes-street, and thence along the northern slopes of the city, with Queen-street as the boundary of this first effort at town planning.

Craig's Plan of Princes-street, etc. (1767).

The plan of James Craig (a local architect) was selected in competition (1767). This plan was deservedly regarded at the time as a work of genius, and when compared with the streets of the ancient city must have impressed the popular mind as nothing short of a revolution in the laying out of a town, showing, as it did, spacious rectangular building blocks intersected by wide streets and finely conceived terminal squares, known as St. Andrew-square and Charlotte-square, on east and west respectively. Curiously, although George-street is now regarded as secondary to Princes-street, the intention of the designer was that George-street should be the principal shopping street and dominant feature of the plan, with Princes-street subsidiary or secondary thereto and as a residential road, which indeed it was. Time has, however, effected in this respect a complete conversion and almost entire reconstruction of Princes-street into the great shopping street of the city.

Princes-street Gardens (1763-1816).

The great valley of the Nor' Loch, at that date just reclaimed by drainage and bounded by the broad boulevard—now Princes-street—formed a most tempting site for building developments, especially so to proprietors, it may be, needy and eager to realise somewhat of the latent value of the land for such profitable purpose as its conversion into building sites. Building operations were actually begun, but the public sense prevailed, so that, after much protracted litigation, an Act of Parliament was obtained in 1816, enacting, *inter alia*, "That it shall not be lawful nor in the power of the Lord Provost, Magistrates, and Council or their successors in office to erect or sanction the erection of any building whatever to be erected in any part of the ground belonging to the community of the said city on the south side of Princes-street."

From this Act, confirmed and reinforced by subsequent Acts, dates the preservation of this uniquely beautiful valley in the centre of the city as a perpetual pleasure-ground for the people—probably unsurpassable in its combination and variety of natural features unspoilt by the builder's and the gardener's art, which have their part, nevertheless, in this beauteous city landscape. The realisation of Craig's building plan proceeded rapidly, and culminated in the building of Charlotte-square as a terminal feature upon the west. This square is probably the most dignified and stately of all our city squares, the architecture being noted as one of the finest works of Adams.

With the then approaching completion of Craig's plan and the continued demand created by the flow of fashion migrating from the High-street and Canongate to this new town the need arose for the development of further building lands lying still northwards and declining towards the valley of the Forth.

* Part of a paper by Mr. A. H. Campbell, M.Inst.C.E., Engineer to the Corporation, read at a conference with delegates from local authorities, held by the Institution of Municipal and County Engineers at Great Yarmouth, July 16 and 17.

Reid and Sibbald's Plan for North Side (1804-6).

Again resort was had to a town plan, and in turn that piece of land bounded by Heriot-row upon the south to Fettes-row upon the north, and from Bellevue on the east to the old-time village of Stockbridge on the west, was made the subject of a town plan. This land again was vested, principally in public trusts, and so enabled this large tract to be treated and planned out as one subject. This development plan, prepared about 1806, adheres to the bold conception—although albeit severe formality—of Craig's scheme for Princes-street, George-street, and Queen-street areas.

The joint authors of this plan were Messrs. Robert Reid and William Sibbald, the former being the architect to his Majesty in Scotland, whilst the latter held the position of City Superintendent of Works. The leading ideas are streets and buildings ranged in rectangular order, straight, but impressive by their great width, fronted by palatial buildings, chiefly of a residential kind, and having that continuous stretch of woodland and greenery as garden ground, extending practically the entire length of the plan from east to west, between Queen-street on the south and Heriot-row upon the north, with the gardens of Drummond-place and Royal-circus balancing the northern fringe of this area.

Garden Spaces the Lungs of a City.

It is the free introduction of the garden idea into those early plans, both of Craig and again of Reid and Sibbald, that give to them such outward attractiveness and add to their worth from a public health and amenity point of view. The inclusion of such "lungs" as essential adjuncts of city development is evidence of the foresight of the planners and of the appreciation by landowners and citizens alike of those things that really matter and which stamp a city as composed of something more than mere stone and lime or an accumulation of bricks and mortar. This recognition of recreation or airing spaces as vitally essential to the growth of a town has set the pace, which, happily, has been well maintained in other areas which followed on, north and south of the ancient city boundary, such as Moray-place, Ainslie-place, and in more recent times the squares and gardens of the west end; whilst the gardens of George-square, Nicolson-square, St. Patrick-square, Gayfield-square, and St. James'-square, etc., all pay tribute to the same idea of a central garden space as indispensable to the successful hygienic grouping of buildings and the growth of communities.

It is regrettable that this custom of those early planners has not been followed in the more utilitarian plans of later days, and thus have preserved for the city, in those areas of a crowded kind, spaces and airing grounds for the inhabitants. The passion for extracting from the land its utmost yield in building, and therefore in money, applied, not indeed so much in Edinburgh as in other cities, and seems to have obsessed the owners, to the exclusion of those finer points of estate planning indicative of regard for amenity and for health. It is well, therefore, that a new era has set in and the public sense reawakened to the need for the garden and the playing-field as indispensable parts of the planning of building estates, and the initial contribution of the land-owner towards the necessities of his future subjects resident upon the land. We shall see how this provision of air space was still further developed, or neglected, in the plans for the Calton-hill and the district lying away to the north thereof and partly within the burgh of Leith. This was a very large part of the city, as its north-east boundary, and bordering the neighbouring burgh. The land was owned principally by the Corporation, as trustees of the Trinity Hospital, and by George Heriot's Trust, together with other interests of a minor kind.

Calton-hill and Lands to the North thereof. Playfair's and other Plans (1819).

Again the results of voluntary combination by the landowners are to be witnessed in the singularly impressive series of competitive plans prepared about the year 1819.

The author exhibited (1) the adopted plan by Playfair, (2) that prepared by Crichton, (3) by Messrs. Milne & Bell, (4) by Nasmyth, and (5) by Reid. Proceeding, he said that the plans provided material not only of present-day interest in the doings of our city rulers a century ago, but as real object-lessons and examples worthy in their main features of reproduction in the plans of the present. They are instructive, too, as works of art, and in this respect may encourage the youthful town-planner of to-day in the clear and graphic expression of his ideas by drawings that indicate care and display skill in design, culture of land, as well as quality of head, combining at once the conception of the artist and the common sense and practical experience of the man of affairs. It is those qualities that are needed in the town planner of to-day, and if those century-old town plans are studied as examples of the art and science of town planning much good will have been done. Like the plans which preceded them of earlier areas, they are deficient in points and matters now deemed essential. It is sad to relate that the adopted plan of Playfair's has suffered much mutilation in execution, owing primarily to the incursion of railways in the Leith-walk locality, so that it is only the noble terraces that girdle the Calton-hill and the fringe of the hillside upon the north that have been realised.

Effect of Railways upon Town Plans.

Truly, the havoc of the railway age and the commercialism of the latter part of the nineteenth century seem to have paid scant respect to the better vision and the finer conception of an earlier generation. Although too late to redeem that particular area from the hands of the spoiler, the lessons taught by that period of decadence remain with us as a warning against the intrusion of a railway into the realm of a town plan, except under adequate safeguards, securing the area against the wrecking effects of unconsidered railway plans. Railway expansion may go hand-in-hand with town planning, and this is the business of the town planner—that he may ensure the land against ill-considered proposals, whether of a railway or other enterprise. Intelligent co-operation and timely representation can generally secure the desires of both without injury to the plan of development.

Moray-place, etc. Graham's Plan (1823).

The next area to be taken in hand was that great tract of land, the property of the Earl of Moray, overlooking the Water of Leith and Dean Valley, and embracing Moray-place, Ainslie-place, Randolph-crescent, and Cliff. For this area plans were prepared by Gillespie Graham about the year 1823. The site was exceptionally fine, including, as it did, the wooded and grandly picturesque slopes of the Water of Leith Valley. The plan of development is made to dovetail in the western termination of Craig's plan of Princes-street and Queen-street, and of Reid and Sibbald's plan of the territory to the north thereof. Internally this plan of Graham's is attractive and novel in its departures from the straight lines of the earlier plans. In lieu thereof we have the curved lines of Moray-place, Ainslie-place, and Randolph-crescent, encircling a series of gardens along the axial line of the plan and flanked by palatial town mansions of exceptionally dignified architectural treatment. This is noticeably so in Moray-place. Criticism is sometimes directed against Graham's plan that it disposes the "backs" of the houses towards the Dean Bridge and the deep valley of the Water of Leith, spanned by that bridge. In explanation of this seemingly reasonable objection it should be remembered that this plan was prepared at least nine or ten years before the Dean Bridge was erected, or probably even projected. There was therefore no justification from a public point of view why at that date buildings should *front* instead of *back* upon the valley; nor can it be seriously maintained that any loss of amenity has been suffered by reason of the disposition adopted. The many-storied mansions of Moray-place, crowning the wooded slopes of the valley, and the terraced treatment of the gardens of those mansions, present from the bridge a combination at once pleasing to the eye, effective as a picture, and void of offence against the æsthetics of this beautiful valley.

West-end Developments: Melville-street, etc.

Concurrently with the development of the Earl of Moray's estate came the western outgrowth of the city in those streets called Melville-street, Coates-crescent, Atholl-crescent, etc. The planning of this area is in no wise inferior to the excellence of the earlier examples that have been described. Modelled upon similar lines, the area worthily sustains the traditions of the new town, both as regards the width of its streets and the quiet dignity of its architecture. The later additions to, or extensions of, this plan in the buildings of St. Mary's Episcopal Cathedral at the extreme west end of Melville-street and directly in line thereof form a noble terminal feature to the west, with St. George's Established Church and its domed crown forming the view towards the eastern end.

Importance of Suitable Vistas in Town Planning.

Those terminal features serve to show the importance in town planning of securing good and suitable vistas as the natural and proper termini to leading thoroughfares, and that, not only in the formal type of town planning, but likewise in the freer treatment of the informal style adopted in the planning of suburban parts. It will be conceded that the various designers of the new town of Edinburgh recognised the part which may be played in giving to leading streets suitable terminal features. To mention a few, consider Princes-street, with Calton-hill and its many monuments closing in the eastern vista, whilst St. George's Campanile Tower and the stately spire of St. Mary's Cathedral terminate the western view; or, again, George-street, with its Melville monument on the east and St. George's Parish Church and dome on the west; Dundas-street, with the appropriately disposed St. Stephen's Church at its northern terminus; or Hanover-street, with the classic Royal Academy in the immediate foreground, backed by the turreted terminals of the Assembly Halls and crowned by that triumph of Gothic architecture in the lofty spire by Pugin; or see the Scott Monument from St. Giles; whilst the Castle itself is the dominating feature, visible from all points of the city's compass. All these and many others that attract the eye at nearly every turn in our new town bear witness to the foresight of those early planners, to whom we must pay grateful tribute, and to the passion that then prevailed of adorning, by worthy architectural dispositions, the city so favoured initially by Nature, and yet also presenting by reason of Nature those very barriers that have made the planning of the city and the linking up of its several parts so physically difficult and so constructionally expensive. Upon this aspect of the subject the following notes are submitted:—

The author has mentioned the North Bridge as the first link in the chain of important connecting works undertaken by the Corporation for the bridging of the valleys by which Nature had seemed to bar the city's growth. The influence of the first North Bridge in opening up the north side has been apparent. A like problem awaited solution in preparing the way for another new town waiting to grow up on the southern suburbs of the old city. This was to be accomplished through the building of the South Bridge.

South Bridge (1785-1788)

is a viaduct about 300 yds. long, spanning the Cowgate Valley and immediately to the south of High-street. The roadway is carried upon a series of nineteen arches, built up in flatted sections with a longitudinal partition wall under the centre of the street and dividing the business premises that now line this highway. Those arches serve as vaults and stores attached to the shops and as cellarage to the premises on the lower levels of the street. Constructionally, this work must have involved heavy cost, and presents much interest to the student of design, revealing evidence of ingenuity in suiting the supports of the bridge to the future service of the street and its frontages. South Bridge is now one of the principal shopping centres; it has a width of 60 ft. and crosses the Cowgate at a height of 37 ft.

The Mound (1781-1830).

Another valley crossed, to unite the old with the new town upon the north, was the site of the old Nor' Loch, at a distance of about 600 yds. west from the North Bridge and called "The Mound." It is so named because the crossing is effected by a great mound of earth, designated at one time "The Mud-Brig." Commenced about the year 1781, it served as a "toom" for the deposits of earth and rubbish (obtained doubtless from the building up of the new town). It is computed to contain about two million cartloads of earth. Although opened for traffic in 1787, it continued to be widened and improved until, in 1830, it was completed substantially as it now appears. The Mound is now pierced by two tunnels

carrying the main lines of the North British Railway through the Princes-street valley. Flanked upon both sides by grassy slopes, and winding steeply up the hill, the Royal Scottish Academy at the base and the Bank of Scotland at the summit are worthy subjects of architectural study, and give to this highway its own distinctive charm. It is about 400 yds. in length and has a road width of 50 ft.

Regent Bridge, Waterloo-place, and Regent-road (1817).

Spanning a deep ravine known as the Lower Calton, and thence skirting the southern slope of the Calton-hill, this work was really in the nature of a viaduct for about 160 yds. of its length. It opened out the closure which till then, by a block of mean buildings, terminated the eastern end of Princes-street, and concealed the fine prospect of the Calton-hill and its monuments as the natural and fitting terminal feature of Princes-street, of which it forms the eastern prolongation and the leading highway out of the city to Dunbar, Berwick, and London. This work was first projected in 1784, soon after the completion of the North Bridge and the commencement of Princes-street developments, but it was not until 1817 that it took active shape, being opened in 1819 by Prince Leopold, afterwards King of Belgium. It was fitting, following upon the triumph of Waterloo, that the heir apparent of that country should be associated with the work perpetuating in name that memorable victory. The roadway of Waterloo-place is carried from the low level by a series of arches which are now enclosed and used in conjunction with the business premises which front the highway. Owing to the depth of the ravine and its precipitous nature the work must have been of a difficult and costly kind. The clear width of the road is 70 ft. The height of viaduct is 50 ft. The total length of this highway, including Regent-road as the essential part of the scheme, is 1,300 yds.

King's Bridge and Johnston-terrace (1827).

Constructed about 1827, this highway forms an easy decline from the Lawnmarket to Castle-terrace, immediately skirting the south base of the precipitous Castle Rock, rising at its side to a height of about 260 ft. This work must have involved the clearance of many ancient buildings which stood upon the site of what is now the Tolbooth Parish Church and the eastern termination of the new road where it debouches from the old Castle-hill. It must also have involved the cutting through of much rock to form the fine terrace which it now presents. The length of this road is about 600 yds., and its width 65 ft.

George IV. Bridge (1827-1836)

is a viaduct running parallel to the South Bridge and a work of precisely similar nature, spanning the same valley at a distance of about 400 yds. westwards therefrom. It is really the sequel to "The Mound," of which it forms the continuation southwards, and thus operates to the relief of traffic from the South Bridge. It is raised upon a series of arches, fully 300 yds. in length, some two and three stories in height, the top story showing an exceptionally fine piece of finished masonry, well worthy of inspection and study as an exhibition of groined vaulting. The cost of this work alone is stated to have been £400,000; when considered side by side with the South Bridge, which is a work of even greater magnitude, the limited resources of those days must have demanded on the part of the city rulers much courage and enterprise, especially so when we remember those other earlier works of heavy cost, for the repayment of which the city's finances were chargeable.

But there was something to show in those various undertakings of bridge and highway construction, for thereby the way was opened for the rapid developments which followed upon the south side of the city, in the Newington, Grange, Blackford, and Warrender Park districts. It is difficult to conceive how such developments would have been possible without those two arterial lines of communication in the South Bridge and George IV. Bridge. Without them the only accesses would have been St. Mary-street and Pleasance upon the east, with the West-bow and Candlemaker-row upon the west. The very thought of such unsuitable accesses stirs a sense of gratitude to the city fathers of those days, who, foreseeing the needs of the morrow, were not afraid to venture, even at great cost, to prepare the way for those developments, and upon which the growth and progress of the city depended.

The Dean Bridge (1832).

The provision of suitable means of communication was essential to the development of the lands of Dean Park, lying to the north and west of the Dean Valley. By the co-operation of the Town Council and landowner, although principally at the cost of the latter (Lord Provost Learmonth), the now famous Dean Bridge was erected about 1832 from the design of Thomas Telford. This bridge, by virtue of its engineer, its strikingly impressive design, and its picturesque setting, has acquired a deserved reputation as one of the sights of the city. It is probably the finest example of a stone arch bridge to be found. It consists of four arches, each 96 ft. span, and 106 ft. high to road level. Its total length is about 450 ft., with a 39-ft. width between parapets. Although when built its immediate purpose was local estate development, it is now the leading highway to that greater engineering achievement, the Forth Bridge, and, *viâ* Queensferry, it is the direct highway to the North of Scotland.

But those works, numerous and costly though they were, do not complete the chain of city improvements falling within the title of this paper. The formation of Cockburn-street and the old Waverley Bridge, carried out by private enterprise about 1859, also Chambers-street, Jeffrey-street, and Marshall-street, etc., included within the programme of improvements during the *régime* of Lord Provost Chambers, and subsequent works which embraced the reconstruction of the North Bridge at a cost of about £217,000, testify to the fact that each generation has now for fully 150 years busied itself with thinking out and putting into execution schemes for the betterment of the city and making it worthy of the reputation it has earned as "The City Beautiful."

GENERAL NEWS.

Carpenters' Company Lecturer, University of London.

Mr. A. E. Richardson, F.R.I.B.A., has been appointed Carpenters' Company Lecturer in the School of Architecture of the University of London for the forthcoming session. The subject of his course will be "The Work of the English Architects of the Eighteenth Century, and of the Greek Revivalists of the first half of the Nineteenth Century." He will deliver ten public lectures on Thursdays at 6 p.m., beginning October 16..

Richmond Castle.

In the *Times* of Wednesday an interesting article on the work of restoration of Richmond Castle, Yorkshire, will be found.

Victor Hugo Statue, Guernsey.

The French Government has offered a granite statue of Victor Hugo to be erected in Guernsey, where Hugo wrote many of his works.

British Museum: New Buildings.

The extension buildings, on the north side, in Montague-place, of which King Edward VII. laid the foundation-stone on June 27, 1907, will shortly be completed, to the plans and designs of Dr. J. J. Burnet, F.R.I.B.A., A.R.S.A. The fittings and equipment are now being made in readiness for the first portion of the collections—the prints and drawings—which will be transferred during the next few months. The removal will occupy some time, and the present students' room of the Prints and Drawings Department will be closed after September 6.

Main Roads in Greater London.

The Local Government Board have issued a circular announcing that Mr. Burns, at the request of the Prime Minister, has consented to preside at a Conference of local authorities and others interested in the improvement of arterial road communication in Greater London. Mr. Burns proposes that the Conference should take place in the autumn, but the precise date has not yet been fixed.

Destruction of Old Frescoes.

The Paris correspondent of the *Times* communicates the following to that journal—Owing to the ignorant prudery of a parish priest the valuable fifteenth-century frescoes in the church of Benouville (Calvados) have been ruined. The frescoes, which were discovered in 1895, were among the finest specimens of fifteenth-century ecclesiastical art. They represented scenes on the Day of Judgment and the old French Moral parable of the Three Dead Men and the Three Living. The frescoes, which were in a good state of preservation, were painted in a vigorous, naïve style which, it might have been hoped, would have rendered the nudity of some of the figures inoffensive.

Burbage Memorial in Shoreditch.

The memorial tablet to James Burbage (builder of the first English playhouse) and a number of other Elizabethan actors, which has been subscribed for by members of the London Shakespeare League and their friends, is to be placed in position on the north wall of the north aisle in St. Leonard's Church, Shoreditch, early in the autumn. The design, by Mr. William H. Ansell, A.R.I.B.A., consists of a tablet in white marble with incised inscription surrounded by a green marble moulding in the style of the English Renaissance as interpreted by Dance, the pupil of Sir Christopher Wren, who designed the church. The sole ornament is a laurel wreath in the centre of the upper part, and the tablet is 8 ft. 6 in. high. The Committee hope also to be able to place a stone seat in the churchyard.—*Times.*

The Royal Sanitary Institute.

The Royal Sanitary Institute announces the fifty-sixth course of Lectures and Demonstrations for Sanitary Officers, during September and November. Among the lecturers are Mr. Alan E. Munby on Elementary Science—Physics, Chemistry; Mr. Edward Willis on Building Materials; Mr. A. Saxon-Snell on Ventilation, Lighting, and Warming; Mr. W. Scott on Details of Plumbers' Work; Mr. W. C. Tyndale on Calculations, Measurements, Plans, and Sections; Mr. F. O. Smith on Sanitary Appliances and House Drainage; and Mr. Henry C. Adams on Sewerage, Sewage Disposal, etc. The lectures are held at the Royal Sanitary Institute and Parkes Museum, and commence at 7 p.m.

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current Competitions is printed on page 207.

Barnsley Town Hall.

The Barnsley Town Council have decided to hold an open architectural competition for plans for the new Town Hall.

Tendring Cottage Homes Competition.

The Competitions Committee of the R.I.B.A. desire it to be known that the conditions of this competition are not satisfactory and are the subject of correspondence between the Committee and the promoters.

Hall, Offices, etc., Red Hills, Durham.

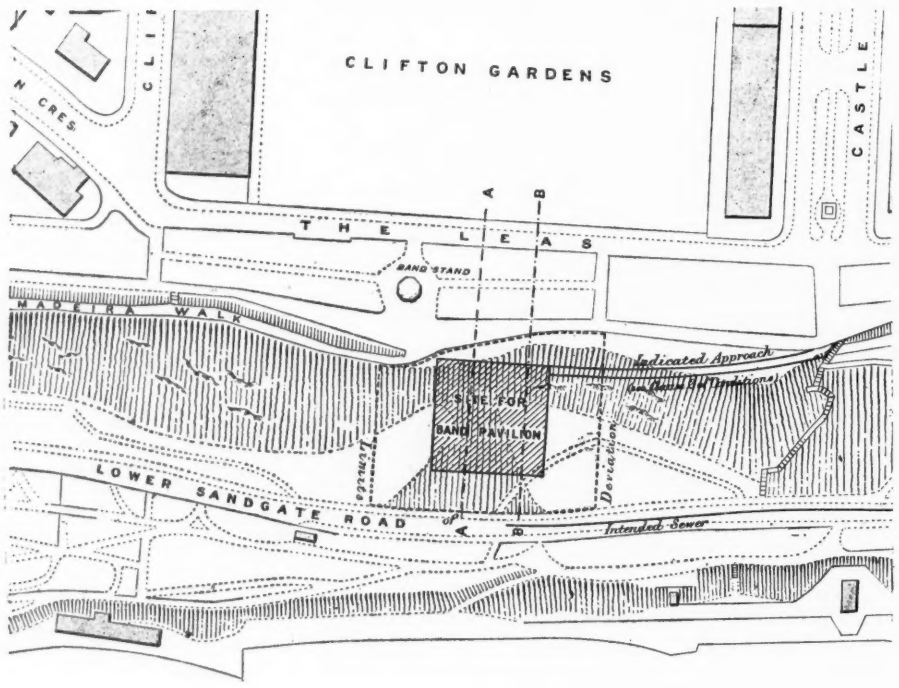
The Committee of the Durham Miners' Association has now fully approved of the designs of Mr. H. T. Gradon for a new hall, offices, and agents' houses to be erected on the ground recently purchased at Red Hills, and the contract plans, etc., are now in hand. The cost is estimated at £16,000.

Nurses' Home, Pontefract.

In a competition limited to the architects practising in the Pontefract Union the Board of Guardians have unanimously accepted the plans and designs for a new nurses' home submitted by Messrs. Garside & Pennington, architects, Pontefract and Castleford. The plans, being submitted without any name or mark of identification, provide for the accommodation of twelve nurses in a most convenient and well-planned building, which is to be proceeded with forthwith.

Proposed Band Pavilion, Folkestone.

The Corporation desire a pavilion of architectural merit, which shall be permanent in character and worthy of the town. Superfluous ornament should be avoided. In selecting designs the assessor will give due consideration to economy. The Corporation propose to expend not more than £20,000 on the whole undertaking, viz., the building, including its foundations, the approaches and the architect's commission and premiums. On the plan accompanying the conditions an indication of an approach to the top floor of the pavilion is given, but this is a suggestion only and



Site for Band Pavilion: Folkestone.

not binding on the competitors, who are to have unfettered discretion to make any proposals for approaches they deem most suitable. The competition is open to all architects. The plan furnished to each competitor shows the site, the levels, the adjoining roads, and the proposed sewer under the Lower-road. Drawings required to ⅛-in. scale: Plan of each floor and roof; two external elevations; one section; and the usual report and estimate.

Mr. E. T. Hall, F.R.I.B.A., has been appointed assessor, and the author of the design placed first by him will be employed to carry out the work, unless there is some valid objection to such employment, in which case the author of design placed second will be employed subject to similar condition. The selected architect will be paid in accordance with R.I.B.A. scale, but if the foundations and approaches are executed by the Corporation the architect will only be paid 2 per cent. on such work. Premiums:—First, £100; second, £75; third, £50; the premium merging with selected architect's fee. A clerk of works will be employed. The selected architect is to furnish a copy of drawings for the Local Government Board, shall attend their inquiry, and assist the Corporation in their application for a loan. If this sanction is refused, the architect will only be paid his premium, a fee for attending the inquiry, and £4 4s. for the copies of plans. When the sanction has been obtained the architect shall, if necessary, revise his design and submit all sketches required by the Corporation for the purpose. If the work is not proceeded with within a year the architect shall be paid 1¼ per cent. on estimated cost. If subsequently proceeded with, this sum to merge in the fee. If on opening tenders the cost exceeds the estimate, made after all modifications and any rise in price has been allowed for, by more than 10 per cent., the Corporation shall be at liberty to select the design placed second if they think fit, and the author of design placed first shall in that case be paid the premium only. Copies of all general drawings to be provided free of cost at completion.

An agreement shall be entered into between the Corporation and the architect, setting forth the terms of the engagement and any other reasonable conditions, of which the assessor in the event of dispute shall be judge and his decision final.

A surveyor, approved by the architect, will be employed by the Corporation to prepare the quantities, and will be held responsible for their accuracy.

Designs to be delivered on or before November 29, 1913, and any questions to be sent in by September 20.

Conditions and plan will be forwarded on application to the Town Clerk, enclosing £1 1s. as deposit, which will be returned if they are received back within one month or within one month of receipt of a *bona-fide* design.

Requirements.

1. The Corporation propose to erect on the slope of the West Cliff a pavilion three stories in height, primarily for the purpose of a concert hall for the performance of the town band during inclement weather, and the principal or top floor will be appropriated to this purpose.

The middle floor of less area will be for rooms accessory to the concert hall, and for reception-rooms which may be used for public or might be let for private and social functions.

The bottom floor, again of less area, will be for an open public shelter (capable of being closed at night), accessible by sloping paths from the lower road, as well as from above.

The roof must be at such level, and of such design, as shall not be generally obstructive to prospect from the Leas or in any way unsightly.

2. There must be approaches from the public road.

3. *The Principal Floor* should be kept down about 30 ft. from the level of the Leas. It should consist of one hall as large as possible in area, and on the plan the competitors should set out the number of chairs which can be accommodated in rows. It should be stated, however, that the hall will, in its normal use, not have rows of seats, but groups of chairs and tables placed about, as in a lounge.

The floor is to be made level for promenade or receptions.

Galleries are permissible to the hall, and, if provided, their seating accommodation should be stated.

There must be a platform to accommodate about fifty performers, and from this staircases should communicate with retiring-rooms in the story beneath for ladies and bandsmen, with suitable lavatory accommodation. There should be a separate retiring-room for the bandmaster and his store of printed music.

There should be on, at least, the sea side an outside terrace for promenade.

Portions of the roof not required for lighting may be used for promenade.

4. Internally all floors must be connected by staircases so placed that they shall not interfere with the rooms on the various floors, or prevent each of the three floors being separately locked up.

5. Competitors must provide for connection to the sewer of all drains from the pavilion.

6. It is proposed that the foundations up to the datum level of the underside of the bottom floor shall be constructed by the Corporation under the Borough Engineer. In like manner the Corporation reserve to themselves the right to construct the approaches.

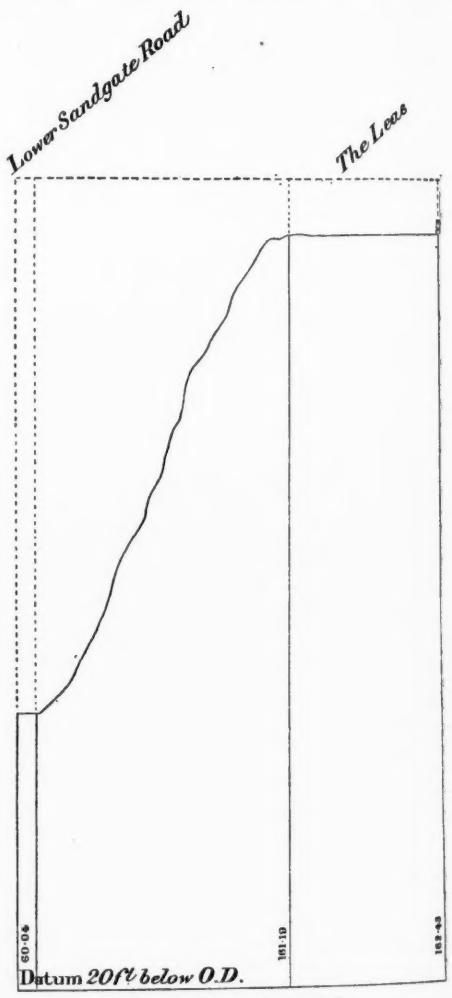
7. *Middle Floor.*—This is to contain a room or rooms which may be let off for receptions, bazaars, etc., or could be used in connection with the principal floor. It must also contain the retiring-rooms from stage (previously mentioned), and separate lavatories, water-closets, and cloak-room for visitors, also accessible from the principal floor.

There is to be no refreshment bar on any floor, but on this floor there should be a service-room with sinks and provisions for tea-making. A hand food lift must be provided connecting all three floors.

8. *Bottom Floor.*—The shelter is to be open on the sea side and should have benches around the walls.

9. *External Design.*—It is contemplated that the lower two floors will soon be covered with creeper, but the principal floor will be exposed to view and will be conspicuous.

On three sides of this a large glass surface is desired so that the visitors seated inside may have as wide a view over the sea as possible.



SECTION A.A.

Band Pavilion: Folkestone.

10. *Heating.*—There must be no furnace shaft, and competitors are to suggest the method of heating and ventilation proposed by them.

11. *Lighting.*—Current will be taken from the company's mains in the Leas-road, but all wiring and lighting, including fittings, must be provided for in the total estimate.

STRIKE AT LIVERPOOL CATHEDRAL.

We learn that efforts are being made to bring about an agreement between the plasterers and bricklayers, through whose disputes all the bricklaying operations on the fabric are suspended. A "lock-out" ensued, it is said, upon an objection raised by the bricklayers to the fixing of some concrete slabs by the plasterers. It is stated that the bricklayers are now willing to go to arbitration in the matter, which, if not quickly adjusted, will affect a large number of other workmen.

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ILLUSTRATIONS.

No. 35, Harley-street, W.

THE building situated at the corner of Harley-street and Queen Anne-street, designed by Messrs. William & Edward Hunt, has been planned with suites of flats, the main entrance being in Harley-street.

The façades to both streets are faced with Portland stone, and a little colour is given to the surround of the main entrance with Forest of Dean stone.

The casements are of wood painted a cream tone, and the small balconies and enclosure to area are in wrought-iron.

Internally the main staircase and hall is finished with painted walls, Greek and Italian marbles are used for the floors, and the staircase has a balustrading of steel and bronze.

One of the entrances to the flats is illustrated, the surround being painted a cream tone with an oak door and fittings in bronze, which is also used for the whole of the internal metal-work.

The builders were Messrs. J. W. Falkner & Sons.

Houses, Quai d'Orsay, Paris.

THESE are characteristic examples of a good deal of the better-class town houses being built in Paris, and are good examples of careful, refined work. The architect is M. Lisch.

Elementary School, Harrogate.

THE Committee asked for designs for a school to accommodate 675 scholars in one building and of one story planned on modern lines. Later the separation of the Infants' Department was made optional. Little difficulty, however, was experienced in grouping the buildings as originally desired, and the gain to the scheme as a whole was very considerable. The elevations were to be in local stone and the interesting tradition of the district was allowed to dictate the treatment.

CHARLES GASCOYNE & GEORGE NOTT, A.R.I.B.A.

MEETING.

WEDNESDAY, AUGUST 27.

Institute of Sanitary Engineers.—Visit to Marconi's Wireless Telegraph Works at Chelmsford.

MEMORIAL TO THE PILGRIM FATHERS AT SOUTHAMPTON.

THE designers of the Memorial to the Pilgrim Fathers at Southampton have struck a new note in commemorative records. Such designs usually take the form of a statue, either of some prominent person or of a symbolic group or figure, such as a colossal "Liberty" or a mourning angel, or something of an equally commonplace and ordinary nature. Mr. R. M. Lucas, F.R.I.B.A., has designed a memorial which doubtless will not escape criticism, but is a courageous attempt to break from the trammels of conventionalism, and is not without dignity. The memorial consists of a square column about 50 ft. in height, composed of rough Portland stone. This is surmounted by a Greek Ionic cupola of the finest Portland stone with eight columns, four of which stand on carved corbels, three of these being female heads, representing Faith, Hope, and Charity, while the fourth facing the sea represents the prow of the *Mayflower*. Within the cupola is a lantern of iron, similar to those which our forefathers used for beacon fires. This is presumably symbolical of the light which the Pilgrims shed across the seas when in a spirit of consummate faith they faced the dangers of an adventurous voyage to seek and found the Utopia of their dreams. The dome of the memorial surmounting the cupola is of gold and white glass mosaic, and is capped by a finial in the form of a copper model of the *Mayflower*.

We are informed that the rough stone base and the elaborately carved and decorated cupola have a symbolical meaning which is not self-evident. This arrangement is intended to symbolise the high civilisation of the Old World superimposed on the rough unhewn rock of primeval America. A little far-fetched perhaps, but not wholly to be despised.

The tall column provides space for special commemorative panels, which have been provided and placed there by the living descendants of individual members of the Pilgrim Fathers. This idea is excellent, and six commemorative panels have been placed. The descendants of the survivors of the original Pilgrims are not very numerous. The severe cold of an inclement winter, disease, and death, and the Indians killed off many of the settlers, diminishing their number by almost one-half. But the descendants of three of the devoted band were on Friday last enabled to unveil the tablets which they had erected to the memory of their sires. The first recorded that of William Brewster, a gentleman of the party, at one time special Ambassador to Holland for Queen Elizabeth, a man greatly beloved, "brilliant in his scholarship, far-seeing in his statesmanship, broad-minded, convincing and eloquent in his preaching. In the words of his beloved friend and companion, 'He sweetly departed this life into a better.'" Another tablet tells of John Alden, who was a native of Southampton. "Youngest of all was he of the men that came in the *Mayflower*." He was the man who was the friend and secretary of Miles Standish, the hero of Longfellow's poem. Edward Winslow, third Governor of the Plymouth Colony, who came of an old and honoured lineage, is also commemorated.

Southampton was *en fête* on the day of the ceremony of the unveiling, August 15. The Mayor and Mayoress held a reception at the Hartley University College. Luncheon was served to about 300 guests in the Pier Pavilion. The town has wisely stirred itself to erect this memorial, which will appeal strongly to the countless number of American visitors who yearly visit the town and make it their place of landing. Hitherto Plymouth has contended for the honour of being associated with the Pilgrims, and is not very well pleased at the action of this rival port. But, although the *Mayflower* was compelled by adverse circumstances to land at Plymouth, it was at Southampton the Pilgrims met and there started on their adventurous voyage, and it is only right and fitting that the event should there be commemorated.

Messrs. Garrett & Haysom were entrusted with the execution of Mr. Lucas's design, and carried out the work with complete satisfaction to the committee and to the public.

P. H. D.

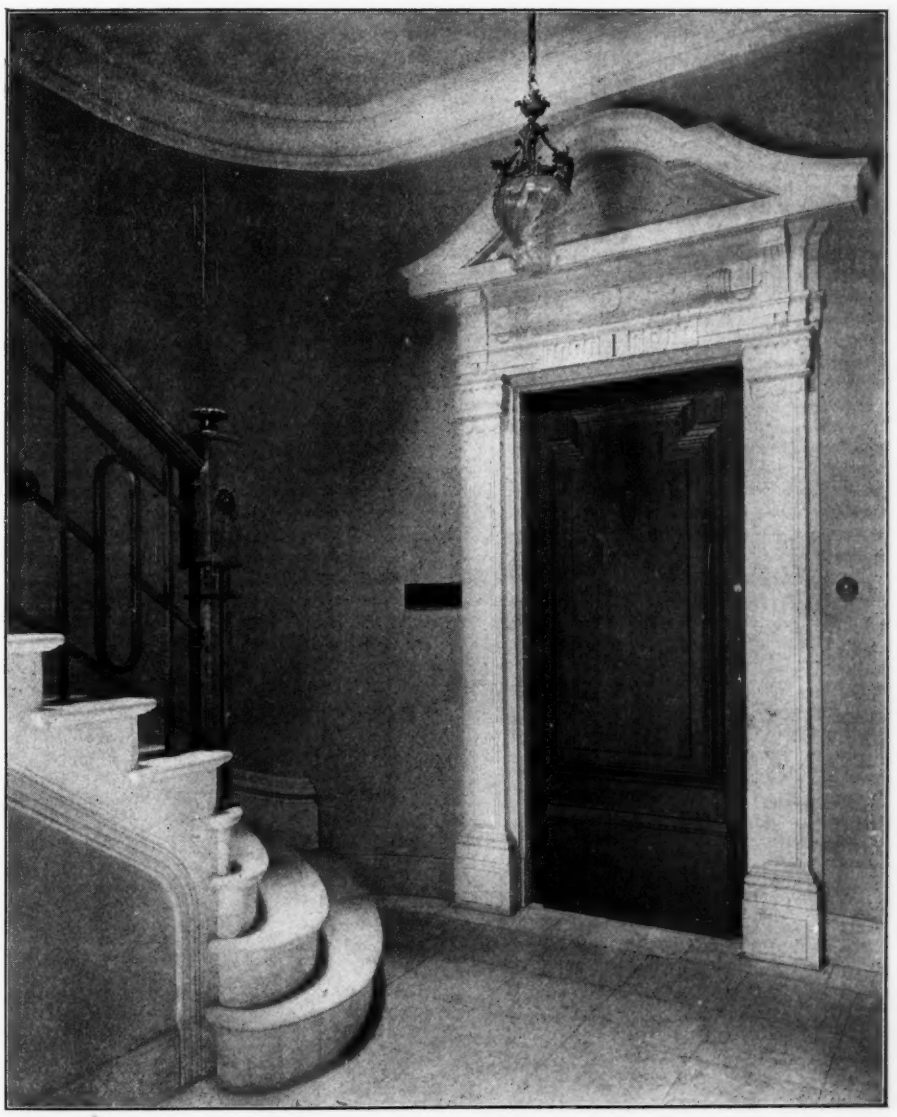
CORRESPONDENCE.

Ministry of Fine Arts.

SIR,—Provided a "Ministry of Art" can be established and conducted on right lines it would prove of great benefit. Rate and tax payers are entitled to this protection in the expenditure of public money.

Birmingham. CHAS. E. BATEMAN.

SIR,—Death duties and more recent taxes are forcing owners to part with their heirlooms, with the result that priceless works of art are



Detail of Staircase: No. 35, Harley-street, W.

Messrs. W. & E. Hunt, Architects.

being sold by auction or smuggled out of the country. Though large sums have been expended in extending the British and Victoria and Albert Museums and the National Gallery, the funds at their disposal leave these great institutions practically unable to purchase anything of real importance. There should be no need to plead for reasonable grants to prevent historic treasures from passing out of the country, but possibly until £5,000 a year is paid to a Minister to plead the cause nothing will be done by the Treasury.

That the influence of a powerful and cultivated man in authority is important is apparent from the flourishing state of the arts in England under certain prelates and monarchs. The Prince Consort affords the most recent example. But is there a man, either peer or commoner, qualified to take this commanding position and inspire general confidence in his ability and impartiality?

On the other hand, genius, such as that possessed by Inigo Jones, Christopher Wren, or Robert Adam, is able to impress its own views upon its contemporaries, and the existence of a constitutional authority empowered to over-rule it might lead to friction, such as was seen between Mr. Ayrton and Sir J. Hooker. At the present time there are many exceedingly good architects and sculptors and decorators, and it is hardly likely these would bow to an adverse decision by a Minister, unless backed by a consensus of competent critics and a statement of the reasons leading to the rejection of designs. Perhaps some large-minded, independent peer of the calibre of Lord Derby or Lord Howard de Walden, clear of politics, and with strength to control the Office of Works, County Councils, and other bodies concerned in buildings, would bring about the best results.

J. STARKIE GARDNER.

Maidenhead, Berks.

SIR,—The passing of the Ancient Monument Consolidation and Amendment Bill, 1913, adds to one Government Department some more of those duties which, scattered as they are among several, should all be concentrated under a Minister of Fine Arts. A.R.I.B.A.

An Important Arbitration Case.

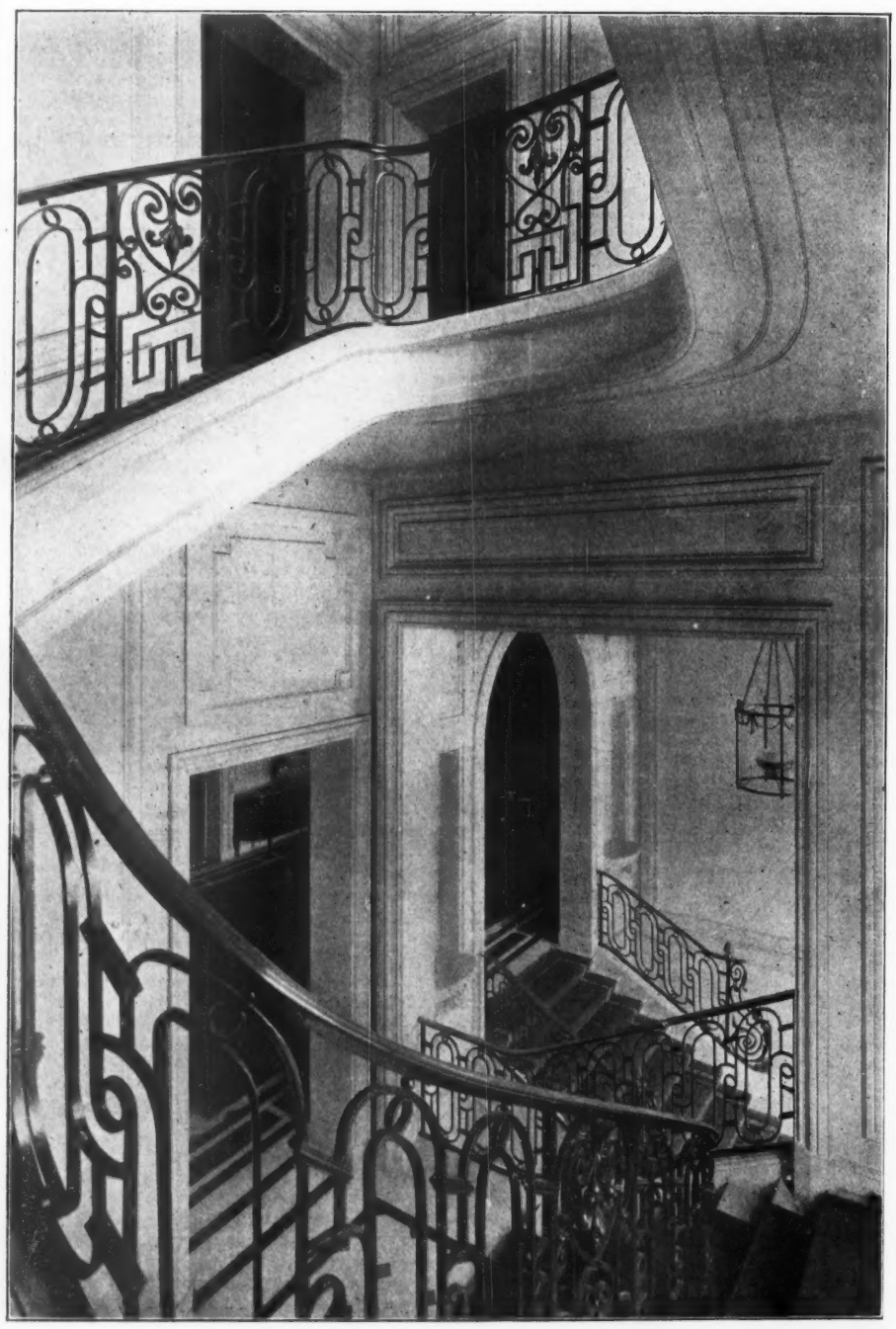
SIR,—In your issue of July 18, p. 69, you report this case. I am a surveyor of over forty years' experience, and I know this property. The front of the back addition is out of the vertical and the wall has parted from the main building so that at the top of the wall there is a space of about 4 in.

I conclude that a mistake has been made, and should not be surprised at something happening. It would be unwise for any owner to rely on this case in the event of receiving a dangerous structure notice, as in nearly every case the District Surveyor is right and has reasonable grounds for his report.

OLD STAGER.

Competitive Tendering.

SIR,—I trust that the extract which you were good enough to make in the *Builder* of last week from my letter to the *Times* on "Competitive Tendering" will lead to a revision of the system which I understand is adopted by some architects of opening the tenders in the absence of the builders. Bearing in mind the expense and trouble which builders are put to in furnishing tenders for architects, I think the least that can be done in return is to allow the tenderers to know precisely the amounts of their fellow-competitors; and the tenders should not, in my opinion, be opened except in the presence of the respective builders, and the amounts of each tender read out and noted. WM. WOODWARD, F.R.I.B.A., F.S.I.



Staircase: Quai d'Orsay, Paris.

M. Lisch, Architect.

INTERCOMMUNICATION COLUMN.

Absorbent Tiles.

SIR,—Your correspondent "R. K." should read your report of the Conference of tile-makers and architects at the Building Trades Exhibition. If my memory serves me right, the trouble was said to arise from the tiles not being sufficiently fired, this again being due to the craze of architects for red tiles.

F. W. W.

[*** The report referred to appeared in our issue for April 25 last.—ED.]

Kitchener for Small Houses.

SIR,—(1) Can anybody recommend a kitchener for small houses less wasteful of fuel than the usual? (2) Does a party wall between buildings of unequal height cease to be a party structure 15 in. above the roof of the lowest buildings? INVICTA.

Air Space in Stables.

SIR,—I have recently been informed by a District Council that they treat a range of stables *without living* accommodation as not being a building of the warehouse class, and therefore require the same air space as a domestic building. I should be glad to hear if any of your readers know of a case bearing on this, as three other District Councils under which I have built stables have not required air space. J. F. WETHERELL, M.S.A.

FIFTY YEARS AGO.

From the *Builder* of August 22, 1863.

ONE of our correspondents, whose name, were we allowed to give it, would carry great weight, says:—

"That arbitration is a most costly way to settle value has long been known. That surveyors and others value for their employer is also certain. How is the law to be improved? Will owners of property submit to the decision of a county or borough assessor, if such a person could be legally appointed? Or must cases be fought out as at present, where occasionally the entire value of the property in dispute, or damage, as the case may be, is expended and lost on a first meeting?

Arbitrators, with unlimited power to call witnesses, with solicitors, with barristers, and with contingent costs and charges, is a blundering and most extravagant mode of settling value. It is also frequently demoralising, as see the wide differences in value sworn to."

*** We think those who have had experience would endorse the opinion given above.—ED.

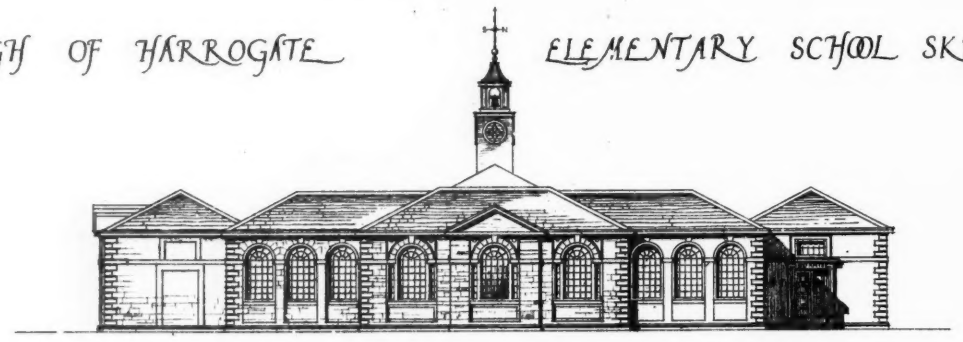
LIVERPOOL TOWN PLANNING SCHEME.

Authority has been given to the Liverpool Corporation to prepare a further town-planning scheme over an area of about 1,177 acres, situate partly within the city and partly within the urban district of Allerton.

THE RUSSIAN FIRE SERVICE INSIGNIA.

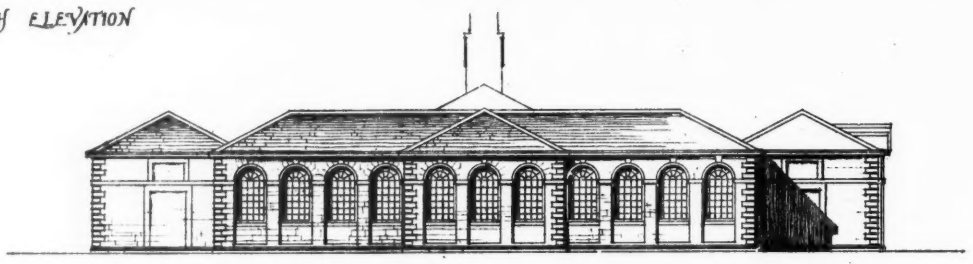
According to an announcement in the Russian *Imperial Gazette*, the Imperial Russian Fire Service insignia in silver has been recently accorded to the following, namely, Mr. Max Clarke, F.R.I.B.A. (member of the executive of the British Fire Prevention Committee); Honorary Chief Officer T. Dyson (Vice-President of the National Fire Brigade Union); Mr. Sidney Gamble, F.S.I. (Divisional Officer of the London Fire Brigade); Honorary Chief Officer Hockin (Truro Fire Brigade); Chief Officer Marshallsay (Aldershot Fire Brigade); and Mr. A. W. Woodhouse (H.B.M. Consul, St. Petersburg).

BOROUGH OF HARROGATE — ELEMENTARY SCHOOL SKIPTON Rd.

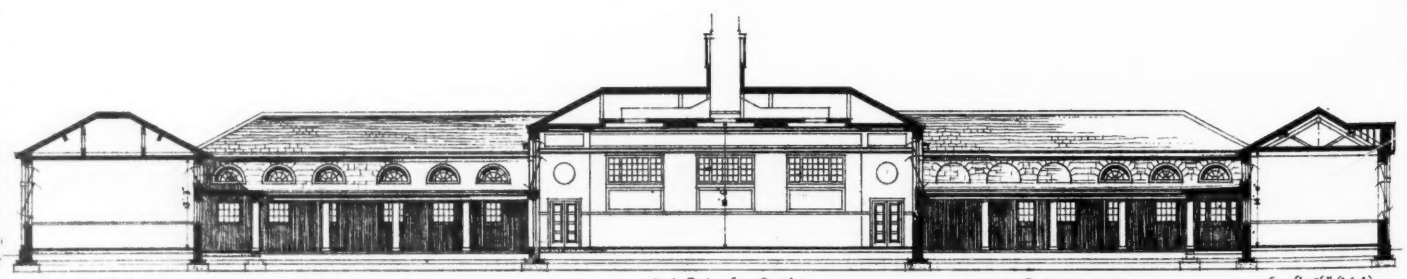


EAST ELEVATION

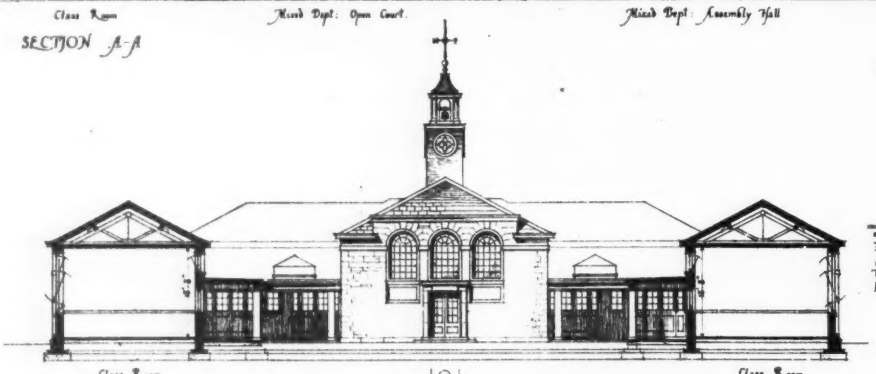
SOUTH ELEVATION



WEST ELEVATION



SECTION A-A



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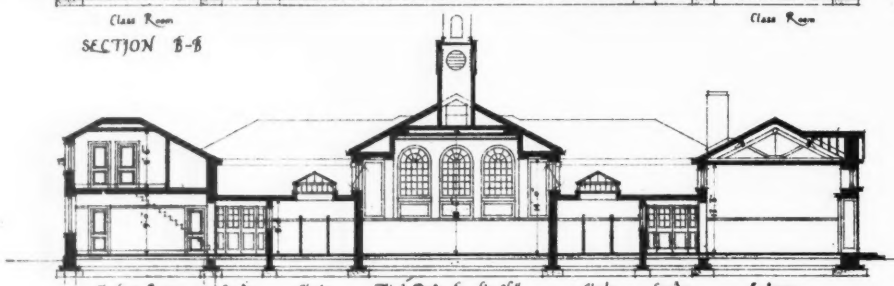

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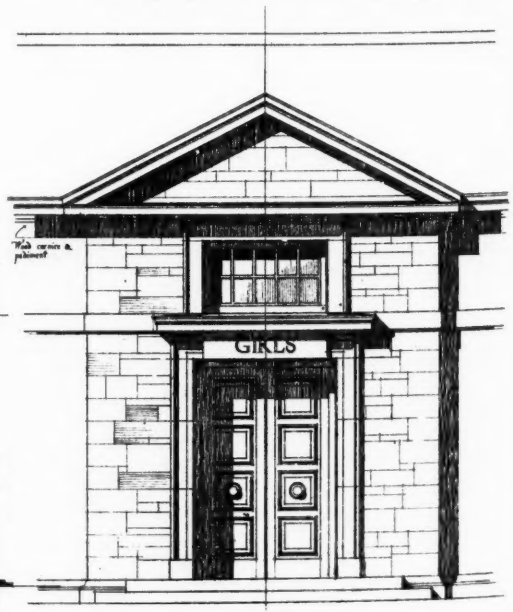
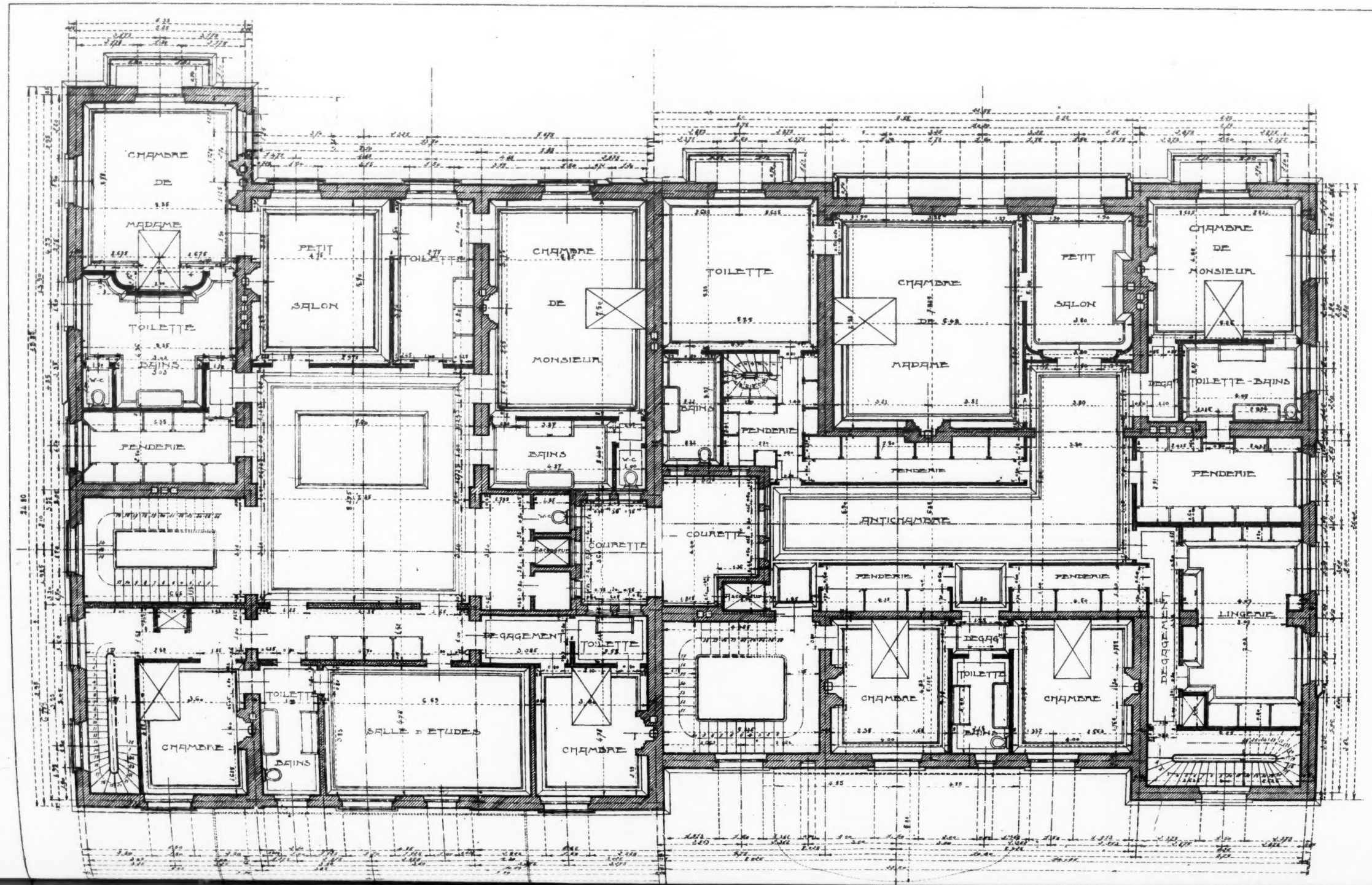


DETAIL OF GIRLS ENTRANCE

ELEMENTARY SCHOOLS, HARROGATE. SECOND PREMIATED DESIGN BY Messrs. C. GASCOYNE. & G. NOTT, A.R.I.B.A.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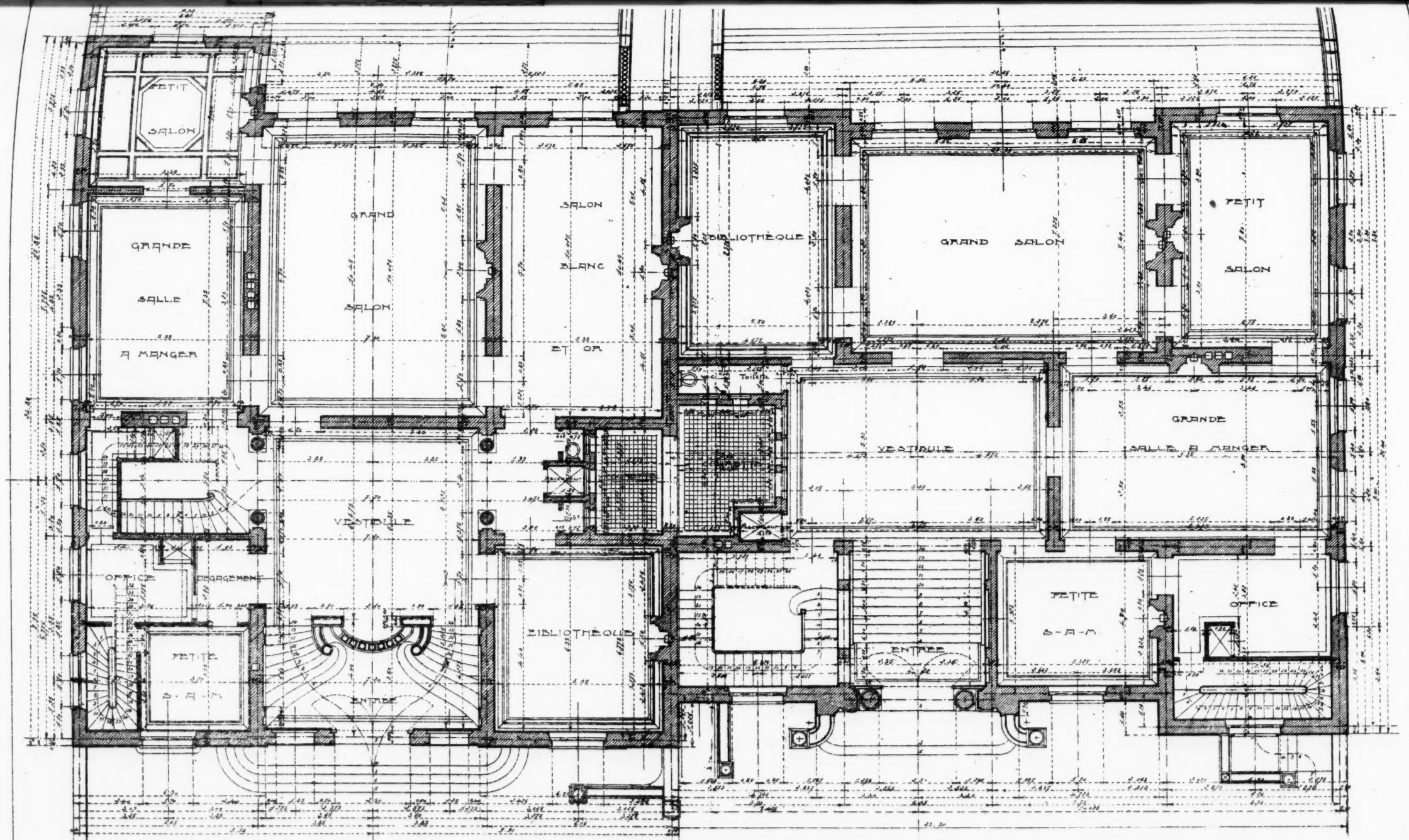
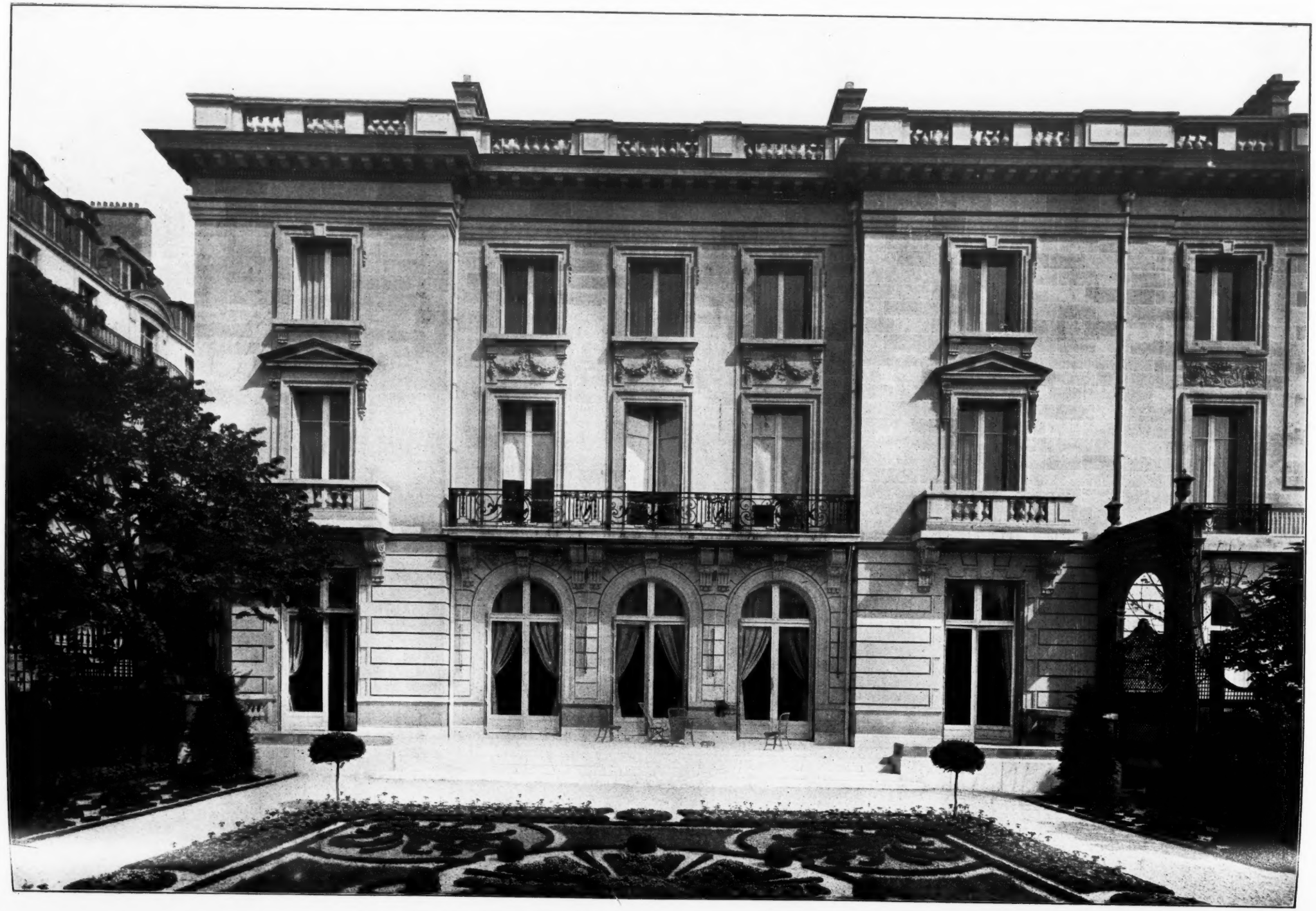


GROUND FLOOR PLAN.

Martin Hood & Larkin, Photolitho., Gt. Newport St, W.C.

HOUSES, QUAI D'ORSAY, PARIS.—M. GEORGES LISCH, ARCHITECT.



HOUSES, QUAI D'ORSAY, PARIS.—M. GEORGES LISCH, ARCHITECT.

Martin, Hood and Larkin, 5 Great Newport Street, London, W.C.

HOUSES, QUAI D'ORSAY, PARIS.—M. Georges Lisch, Architect.

Martin, Hood and Larkin, 8 Great Newport Street, London, W.C.

Martin, Hood and Larkin, 8 Great Newport Street, London, W.C.

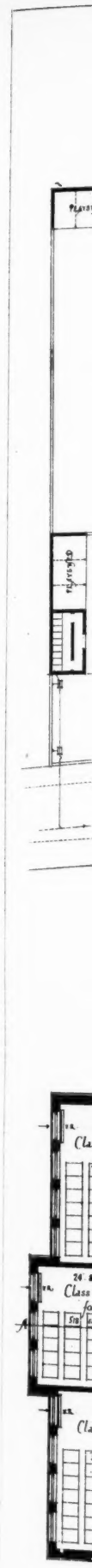
35 HARLEY STREET, W.—Messrs. WILLIAM & EDWARD HUNT, ARCHITECTS.

Martin, Hood and Larkin, 8 Great Newport Street, London, W.C.

35 HARLEY STREET, W., MAIN ENTRANCE.—Messrs. WILLIAM & EDWARD HUNT, ARCHITECTS.

Martin, Hood and Larkin, 8 Great Newport Street, London, W.C.

HOUSES, QUAI D'ORSAY, PARIS.—M. GEORGES LISCH, ARCHITECT.



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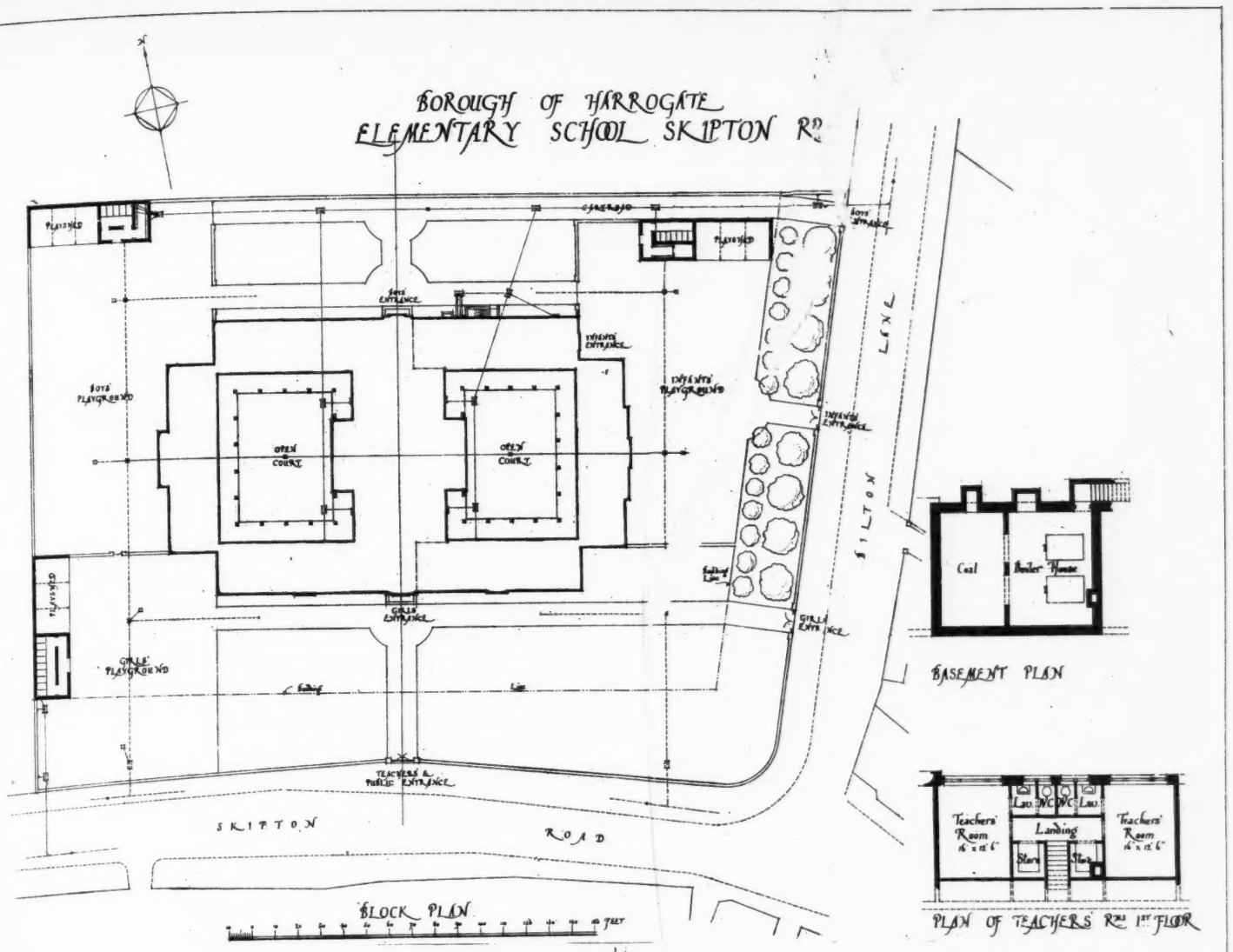
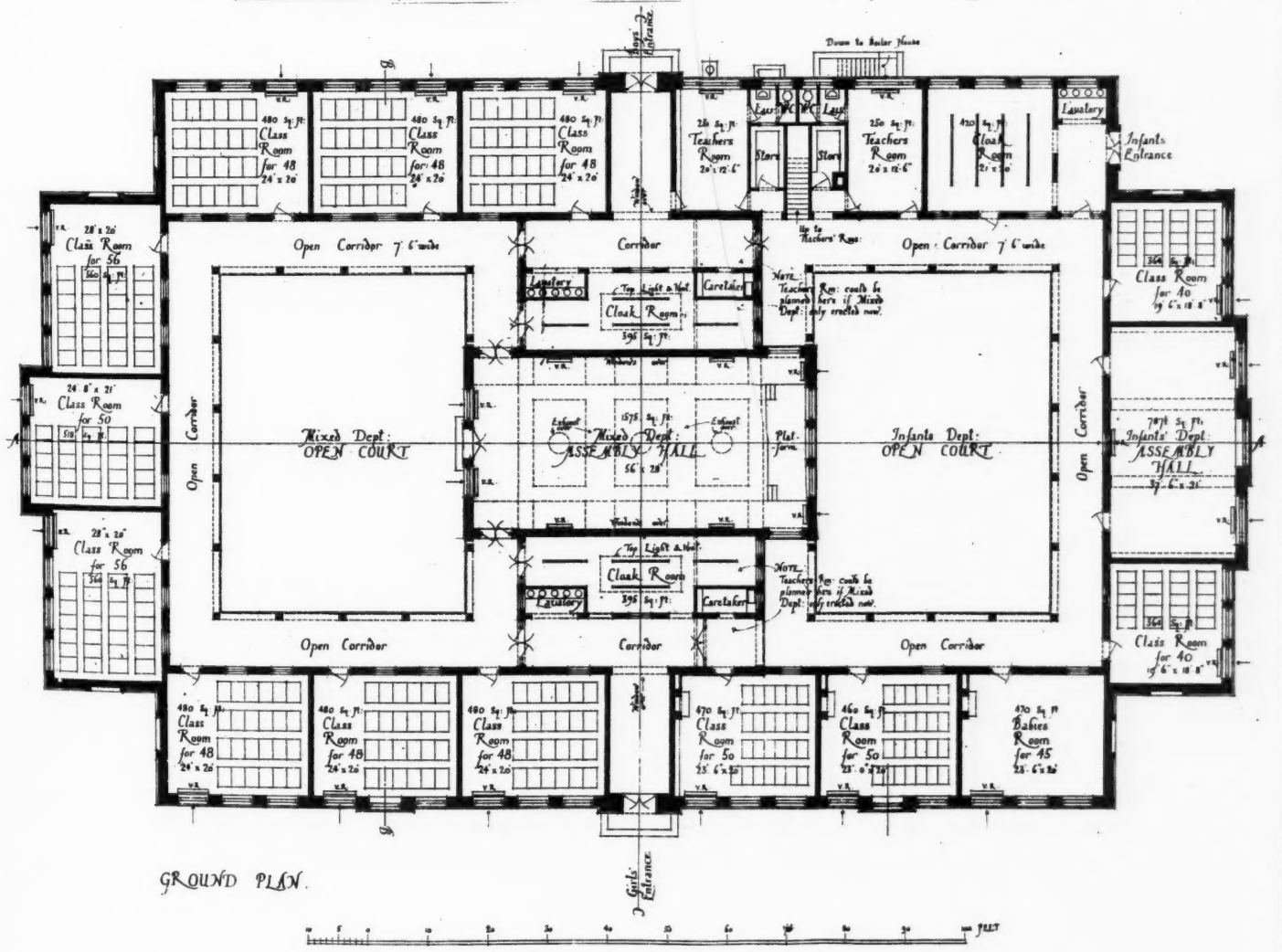
BOROUGH OF HARROGATE
ELEMENTARY SCHOOL SKIPTON Rd




Down to Boiler House
Boys' Entrance
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480 Sq. Ft. Class Room for 48 24'x20'
480 Sq. Ft. Class Room for 48 24'x20'
28'x26' Class Room for 56 560 Sq. Ft.
24'8"x21' Class Room for 50 518 Sq. Ft.
28'x26' Class Room for 56 560 Sq. Ft.
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Corridor
Lavatory
Caretaker
Cloak Room 395 Sq. Ft.
Top Light & Vent.
Mixed Dept: OPEN COURT
Mixed Dept: ASSEMBLY HALL 56'x28' 1575 Sq. Ft.
Entrance
Entrance
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Infants Dept: OPEN COURT
Open Corridor
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Cloak Room 396 Sq. Ft.
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Note. Teachers Rm: could be planned here if Mixed Dept: only erected now.
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Lav. W.C. W.C. Lav.
Store
Store
250 Sq. Ft. Teachers Room 20'x12'6"
420 Sq. Ft. Cloak Room 21'x20'
Lavatory
Infants Entrance
Up to Teachers' Room
Open Corridor 7'6" wide
356 Sq. Ft. Class Room for 40 19'6"x18'8"
787 Sq. Ft. Infants' Dept. ASSEMBLY HALL 37'6"x21'
356 Sq. Ft. Class Room for 40 19'6"x18'8"
470 Sq. Ft. Class Room for 50 23'6"x20'
460 Sq. Ft. Class Room for 50 23'0"x20'
470 Sq. Ft. Babies Room for 45 23'6"x20'
Girls' Entrance
GROUND PLAN.
FEET

Mackie Hood & Harkin, Photolitho Ct, Newport St, W.C.

ELEMENTARY SCHOOLS, HARROGATE. SECOND PREMIATED DESIGN BY MESSRS. C. GASCOYNE. & G. NOTT, A.R.I.B.A

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LIGHTING, HEATING, AND SANITARY ENGINEERING SECTION.

ARC LAMPS FOR INDIRECT LIGHTING.

DURING the last few years, and particularly since the formation of the Illuminating Engineering Society in America, the science or art of illumination has been popularised to a very large extent, at any rate amongst authorities who are concerned in the lighting of interiors. In this connection most valuable work of an educational nature has been done in this country by Mr. Leon Gaster and Mr. Justus Eck, the former having been instrumental in organising a kindred society in London, and the latter by his lectures and propaganda in connection with arc lamps.

One of the first axioms of illumination is that the source of light shall not be allowed to strike the retina of the eye, the pupil of which becomes smaller when it is exposed to strong light rays, so that the eye actually sees less under these conditions than when the light is well diffused. Hence, it was considered necessary to devise suitable means for concealing the sources of artificial light and for diffusing it, by raising the lamp well above the line of vision, by enclosing it in glass globes which break up the rays, by reflecting it downwards or upwards, or by various combinations of these methods. The lighting of small interiors must always be effected with small units of light, and there are several ways of using metal filament lamps for this purpose. But when it comes to large interiors, such as public halls, shops, workshops, etc., the use of metal lamps presents considerable disadvantages, in whatever manner the illumination is effected. It is only necessary to mention the large number of points to be wired and maintained in order to provide effective illumination, and when indirect or semi-indirect lighting is considered the cost is enhanced enormously.

Arc lamps, owing to their higher efficiency and the whiter light that they give, have been used for large interiors (especially stores and workshops) for many years; and they present other advantages over metal filament lamps, in that there are many less points to wire and maintain, and also that where the building is a large one the work of recarboning compares favourably with that entailed by the replacement of metal lamps, the cleaning of shades, and the general nuisance of having hundreds of points to look after. Owing to their powerful source of light, however, ordinary arc lamps have to be enclosed in opalescent globes, which are even then unpleasant to look at, and throw strong shadows. Further, they are more troublesome to trim when globes are used, and there is the occasional breakage of globes to be taken into account.

Inverted arc lamps—that is, lamps with the larger positive carbon at the bottom, concealed by a conical reflector—have been used for many years in drawing offices and the like. The effect of this arrangement is that the crater of the positive carbon points upwards and the light is thrown on to the ceiling, or sometimes on to a top reflector. This arrangement is somewhat crude, and more recently so-called indirect or semi-indirect lamps have been employed. In these the carbons are in the normal positions, and an opaque or opal under-reflector respectively throws the light on to the ceiling and, in the latter case, allows some of it to diffuse downwards through the glass. Very pleasing effects are produced by these means, especially if the ceiling is rendered suitable, and tests have been made which show that, even allowing for the light absorbed by the ceiling, etc., more illumination at less cost is obtained than with metal lamps.

Some of the further advantages of indirect lighting by arc lamps compared with metal lamps are as follows. The average economical life of metal lamps is much shorter than is generally supposed, namely, less than 500 hours, whereas the life of an arc lamp is practically indefinite and the carbons do not cost much compared with lamp renewals for equal light; increase or decrease of current causes the light of metal lamps to vary considerably, whereas with arc lamps it is proportional; the whiter rays of the arc lamp are more comforting to the eye and give truer colour values than the redder rays of the metal lamp; the effect of large units of light even for indirect lighting is much less annoying than large quantities of small units, with their attendant chains and bowls, and if the metal lamps are concealed in a hollow cornice it requires a huge number and a ceiling of special design to give anything like a general illumination. Finally, arc lamps of the indirect pattern can be made as ornate as may be desired, but, in general, simplicity without crudity is more pleasing and certainly better than the kind of fittings employed for indirect metal lamp lighting.

It is the opinion of most lighting experts that indirect lighting by arc lamps is, to use a hackneyed phrase, only in its infancy, and as its advantages come to be appreciated this method will become very general and popular.

LIGHTING OF SCHOOLS.

THE Report to the Cheshire County Council (Education Department) of the Chief School Medical Officer for the year 1912 (Dr. Meredith Young, M.D., D.P.H.) contains some interesting remarks on schools, as well as comments on the condition of various schools in the areas of other medical officers of the county. The following remarks by Dr. Cameron Gibson on the lighting of schoolrooms will be of interest. Dr. Cameron Gibson carried out, at the suggestion of Dr. Meredith Young, a careful and painstaking inquiry into the lighting of certain selected schools, and the following is from his Report:—

The instrument used was Bishop Harman's photometer, in which the illumination at the place to be tested is matched by that from a standard candle, the distance of which from the illuminated object can be varied and measured by mechanical means. The illumination is then read off in "foot-candles"; a light of three foot-candles means such a light as would be given by three standard candles at a distance of 1 ft. from the object. Further, Bishop Harman suggests that the minimum illumination advisable is nine foot-candles for daylight or three foot-candles for artificial light, measured by his instrument. The intensity of daylight varies very much according to the state of the sky, the hour of the day, and the season, so that in order to compare the natural illumination in one room with that in another one requires some measure of the intensity of the daylight that obtained outside at the time that the light inside the room was estimated. This was accomplished by means of a photographic exposure meter, in which the time taken for the light to darken a piece of sensitive paper to a standard tint is noted, and as the quantity of light that must be absorbed in order to produce the definite amount of chemical change corresponding to the change in colour is constant, the length of time taken is an inverse measure of the brilliancy of the light. That is to say, if, when it takes fifty seconds out in the open to darken the paper to the standard tint, the lighting at a certain point in a room is twelve foot-candles, then, when on another occasion it takes 100 seconds outside to darken the paper as before, the illumination at the same point in the room should be found to be six foot-candles. This, however, is only approximately true, as any point in a room is not lit by the whole sky, but by a small part of it whose brilliancy may differ very much from the general brilliancy. I have stated above that a minimum daylight illumination of nine foot-candles has been laid down as desirable; in order to decide whether any room is well lit on this basis, one must premise a certain brilliancy of outside daylight at which this figure of nine foot-candles must be attained at the working points within the room. In the middle of the day, with the air clear, the winter sun may take fifty seconds to darken the sensitive paper to the standard tint, while if the sun be obscured by clouds the time taken may be anything up to 300 seconds, under ordinary conditions of weather; so that one can take as a low standard that the illumination of a room should satisfy requirements with outside light having an actinometer value of fifty seconds—that is to say, weak wintry sunshine; owing to the variation in brilliancy of different parts of the sky, the lighting would need to be measured on several occasions. Many of the schoolrooms examined could not be classed as well lit, but indeed are frankly bad.

The ratio of the floor area to the glazed area of the windows varied from between 6 and 7 to 1 in the newer schools to between 10 and 13½ to 1 in the older ones. One usually finds, in these latter rooms, that only a comparatively small portion of the floor is utilised for the children, as the desks are crowded into the part which is well lit; for instance, in Room 13, with a floor to glass ratio of 13½ in. to 1, fifty-three children were crowded on to a floor space of 168 sq. ft., next to the windows, with the result that the average illumination of the desks was quite good, but this crowding is very reprehensible for other reasons, such as the communication of diseases and of vermin.

The width of the room, from the window wall, in association with the height of the window, are other very important factors. With windows 12 ft. high the range of good illumination seldom extends further than 18 ft. to 20 ft. from the window. One consequently finds that in the newer classrooms, with sufficient window area, and a window height of 12 ft. or a little more, but a width of floor of 25 ft., that the file of desks furthest from the windows, and even sometimes two files, are empty of children, owing to their poverty of lighting. The furthest desks receive light from the lowest fourth only of the sky, part of which is likely to be obstructed by buildings or trees, and also the light necessarily falls at a very low angle and is more spent in useless reflection than in illumination. The lower the window the less the width of floor that can be well illuminated. Occasionally one finds that the passage of light through the windows is obstructed by obscuring of the panes or by curtains.

The lower limit of the glazing or height of the sill is as much as 5 ft. above the floor in some infant rooms. The part of the floor next to the window wall cannot then be well utilised, as the lighting is defective.

Doubtless the colouring of the walls, ceiling, etc., has an effect on the illumination of the room, but this could not be clearly traced, owing to the largeness of the other factors.

Even in a well-lit room the disposition of the desks so that the children sit with their backs to the light may reduce the illumination on the books to much below the minimum desirable; when measured, the light on the desk in the shadow of the child's head was found to be from one-third to one-ninth of what it was clear of the shadow. The position of the blackboard is also of importance.

The artificial lighting of schools is also dealt with in the Preliminary Report of a Joint Committee appointed in 1911, and this Report has been issued by the Illuminating Engineering Society. It is printed *in extenso* in the issue of the *Illuminating Engineer* (London) for July, and from it we extract the following:—

The members of Committee were:—Professor W. C. Clinton, Mr. J. Darch, Dr. W. Ettles, Mr. F. W. Goodenough, Dr. H. R. B. Hickman, Dr. J. Kerr (Chairman), Mr. W. R. Rawlings, Mr. T. E. Ritchie, M. A. Stokes, Mr. S. E. Thornton, Mr. P. J. Waldram, Mr. R. J. Wallis-Jones, representing the Illuminating Engineering Society; Dr. R. S. Clay, representing the Association of Technical Institutions; Dr. J. H. Vincent, representing the Association of Teachers in Technical Institutions; Mr. E. S. Mortimer, representing the Londo n

TABLE CONTAINING DETAILS OF DR. GIBSON'S INVESTIGATIONS INTO NATURAL LIGHTING OF CERTAIN SCHOOLS.

School and Room.	Ratio— Floor Area.	Ratio— Glass Area.	Maximum Height in Inches of Glazing from Floor.	Breadth of Room from Windows in Feet.	Date.	Time.	Actinometer Value. Seconds.	Desk Illumination (Foot-candles). Maximum.	Minimum.	No. of Places with Illumination under 9	Blackboard Illumination.
1. Sandbach Council (Infants), S.W. Room	11½		130	43¾	Oct. 7	11.50	4	over 16	3¾	4	5½
2. Sandbach Council (Infants), N.E. Room	10½		129	21½	Oct. 7	12.5	15	over 16	10	0	13¾
3. Sandbach Council (Mixed), Standard Va. Room	6½		134 & 157	25	Oct. 7	10.40	8	over 16	13¾	0	16
4. Sandbach (Junior Girls), Room C.	11½		148	33½	Oct. 7	2.0	30	16	2¼	29	1½
5. Sandbach (Junior Boys), Room C.	11½		148	33¼	Oct. 7	3.0	90	over 16	1	24	1
6. Nantwich C.E. (Boys), Main Room	7		110 & 160	24	Oct. 14	11.0	20–15	over 16	1	43	3–16
7. Nantwich Council (Senior), Room 6	6½		135 & 160	25	Oct. 14	11.50	10	over 16	3	20	9–13
8. Nantwich Council (Senior), Room 6	—		—	—	Feb. 27	3.40	40	over 16	7	1	5–14
9. Timber-lane, Northwich (Infants)	9⅝		138	25	Oct. 21	11.15	13–17	over 16	5	8	8–12
10. Paradise-street, Northwich, Main Room W.	8		115	20	Nov. 12	2.30	160	12¼	2	31	under 1
11. Paradise-street, Northwich, Main Room E.	8		115 & 145	31	Nov. 12	2.40	160	11	under 1	38	9
12. Wharton C.E. (Boys), Room F.	7½		112½	21	Nov. 18	2.40	80–120	over 16	7½	5	5
13. Wharton C.E. (Boys), Room C.	13½		108½	25	Nov. 18	2.30	55–240	14	1	20	6
14. Winsford C.E., S.E. Room	8		129 & 152	24½	Nov. 18	11.30	35–95	over 16	3¾	(16)	13
15. Wheelock Wesleyan (Infants), S. Room	10		103	17½	Dec. 17	10.50	35	over 16	5½	1	16
16. Crewe Secondary, 1st Floor, E. Room	7		125	18¾	Nov. 26	12.45	60–200	over 16	8½	1	11
17. Crewe Secondary, 1st Floor, N. Room	6¾		125	21	Nov. 26	1.0	60–200	over 16	6	4	10
18. Crewe Secondary, Ground Floor, E. Room	7½		125	20	Nov. 26	1.15	250	over 16	under 1	16	3½
19. County Training College, Large E. Room	8¼		141	22⅓	Nov. 26	10.45	40–55	over 16	6½	7	4¾
20. County Training College, Sewing Room, 1st Floor	7		Roof-light	—	Nov. 26	11.45	55	over 16	over 16	0	9¼

Teachers' Association; Dr. E. H. Nash, representing the Medical Officers of Schools Association; Dr. N. Bishop Harman.

Ex-officio.—The President (Professor S. P. Thompson), Hon. Secretary (Mr. L. Gaster), and Assistant Secretary (Mr. J. S. Dow), of the Illuminating Engineering Society.

The terms of reference of the Committee included both daylight and artificial illumination, but it was resolved that the latter subject should be dealt with first. There are a number of investigations which still remain to be pursued in detail, but it was considered that the time was ripe to issue an interim report embodying the conclusions so far reached.

Intensity of Illumination Required.

The intensity of illumination necessary in schoolrooms depends on the nature of the work carried out. In many details further experience is necessary before precise limits can be assigned to these quantities in specific cases.

A distinction might be drawn between the needs of children and the requirements of adults. But inasmuch as the results of working by defective illumination seem likely to be proportionately more serious in the case of children, the Committee have considered mainly their needs in making these suggestions. A broad distinction should also be drawn between ordinary clerical work (reading and writing, etc.), and special work (art and metal work, embroidery, etc.). A number of experiments on this point were conducted by the Committee, the illumination being adjusted until it appeared sufficient for various classes of work, and photometric measurements then made.

As a result it is suggested that (*a*) for ordinary clerical work (reading and writing, etc.) the minimum illumination measured at any desk where the light is required should not fall below two foot-candles; * (*b*) for special work (art classes, drawing offices, workshops, and stitching with dark materials, etc.), a minimum of four foot-candles is desirable; (*c*) for assembly-rooms, etc., and for general illumination a minimum of one foot-candle measured on a horizontal plane 3 ft. 3 in. from the ground. The question of the permissible diversity factor remains to be considered.

It was also recommended, in view of the general recognition of the prejudicial effect on the eyes of children of fine needlework carried on by artificial light, that only coarse work on white material should be executed by artificial light in elementary schools, the minimum in this case being the same as for (*a*) above.

Direct, Indirect, and Semi-Indirect Lighting.

The Committee then proceeded to consider various methods of lighting schoolrooms. A series of questions relating to the respective merits of direct, indirect, and semi-indirect lighting were drawn up and submitted to Mr. J. G. Clark, Mr. V. H. Mackinney, Mr. T. E. Ritchie, and Mr. F. W. Willcox. The thanks of the Committee are due to these gentlemen for the trouble they have taken in preparing answers to these questions and attending before the Committee to state their views.

After hearing this evidence the Committee took note of the respective advantages of these methods for certain classes of work, but decided that the above standards of illumination should be provisionally adopted irrespective of the method of lighting.

Blackboard Lighting.

The question of blackboard lighting was next considered. Whereas the minimum illumination suggested for reading purposes (namely, two footcandles) might be enough in the case of a small classroom, where white chalk is mainly used, and no students are further than 20 ft. from the blackboard, a higher value would in general be necessary in the case of larger rooms, and on boards where it is customary to use diagrams in coloured chalk. By the kind permission of Dr. R. S. Clay a number of experiments on this point were carried out at the Northern Polytechnic, the blackboard being illuminated with varying intensities, and the visibility of figures written in white and coloured chalks examined from various parts of the room. As a result, the Committee recommend that an illumination on the blackboard about 60 per cent. in excess of that prevailing in the rest of the room is desirable.

As a rule it would be necessary for the illumination on the blackboard to be carried out by special local lighting from lamps equipped with opaque screens, completely concealing them from the eyes of students. The nature of the surface of the blackboard is also of importance. This should be maintained a dead black sensibly free from regular reflection, so that the maximum contrast between the white chalk and the blackboard may be available, and that there may be no glare due to reflection from polished surfaces. The blackboard should be repainted at regular intervals.

Avoidance of Glare.

A point of special importance in connection with schoolroom lighting is the avoidance of glare from the sources of light, and the Committee desire to emphasise the value of proper methods of shading. It is a common defect in schoolrooms for the bare mantles or filaments to be within the range of vision of students when looking towards the blackboard. The Committee recommend that no lamps should come within the solid angle subtended at the eye by the blackboard and a space 2 ft. above it, unless they are completely screened from the eye by a shade impervious to light. In general it is desirable that no incandescent surface should be visible to the eyes of students or teachers while carrying on their ordinary work.

Another source of glare is the direct reflection of light from the polished surfaces of the desks or paper. It would be desirable for text-books intended for the use of young children to be printed on matt paper that is sensibly free from prejudicial reflection of this kind.

As a further means of avoiding this defect the Committee advocate the use of shades in which the brightness of the source is spread out over a considerable area, and the judicious use

* Four members of the Committee, Mr. Goodenough, Mr. Stokes, Mr. Darch, and Mr. Mortimer, were strongly of opinion that the minimum illumination should not be less than two and a half foot-candles.

TABLE GIVING RESULTS OF DR. GIBSON'S INVESTIGATIONS ON ARTIFICAL LIGHTING BY GAS

School and Room.	Source of Light.	Height in Feet of Light from Floor.	Area of Floor; sq. ft.	Estimated Consumption of Gas; cub. ft. per 100 sq. ft. of Floor per Hour.	Desk Illumination (Foot-candles). Max.	Min.	Average.	†Diversity Coefficient.	No. of Places with Illumination under 3.	Blackboard Illumination.
Sandbach Technical, Needlework Room	2 Batswing Burners 2 Upright Incandescent 4 Inverted Incandescent	5¼	338	10	7	(½)	3·00	14	12	(½)
Sandbach Technical, Small Art Room	4 Upright Incandescent	9½	283	6	3½	(½)	1·75	7	all but 2	2
Sandbach Technical, Large Room, North portion	3 Upright Incandescent	7¾	356	3	6	1	3·22	6	11	2¼
Sandbach Technical, Committee Room	8 Batswing Burners	6½	512	8	3½	1	2·70	3½	29	4
Nantwich Technical, Room 7	5 Upright Incandescent	9 and 7	430	5	8	2¾	5·10	2·9	1	3
Nantwich Technical, Room 1	4 Upright Incandescent	9	398	4	12	2¼	7·00	4·4	1	3¼
L.C.C. School, Bamsbury*	Upright Incandescent	?	540	2·6	4·1	2·4	3·12	1·71	?	2·0
East Ham School, Hartley-avenue*	Inverted	?	634	2·37	6·0	2·4	4·21	2·5	?	2·6

* The last two are taken as typical examples of satisfactory gas illumination from tables in an article by Mr. F. W. Goodenough, the *Illuminating Engineer*, February, 1911.
† Diversity coefficient is the ratio between the maximum and minimum illuminations.

of reflection from the walls and ceilings of the room. These should be of such a texture that any considerable regular reflection is avoided, glazed and shining surfaces above the dado being specially objectionable.

Avoidance of Inconvenient Shadows.

In the classroom the lights should be so arranged that inconvenient shadows cast by the body on the desk should be as far as possible avoided. The precautions suggested under the previous heading, and particularly the use of light-tinted surroundings which serve to diffuse the light, may be recommended with a view to softening the shadow. The ceilings should be preferably of a warm, white colour, and the walls and all woodwork above the dado should be light in tint.

The Artificial Lighting of Libraries.

In the same issue of the *Illuminating Engineer* is given the Preliminary Report of the Joint Committee appointed in 1911 on the Artificial Lighting of Libraries. It is issued by the Illuminating Engineering Society, with the approval of the Library Association. The terms of reference of the Committee include both natural and artificial lighting, but it has so far confined itself only to the latter.

The first meeting was held on March 14, 1912, when a list of subjects for consideration was drawn up, and these have been subsequently discussed in detail.

The Committee feel it would not be desirable to report definitely on many of these points at the present moment, owing to the developments constantly taking place in methods of illumination and the necessity of fuller information as to their respective merits. It was, therefore, decided to issue an interim report embodying the points on which agreement has so far been reached.

Amount of Illumination Desirable.

The first question which received the Committee's notice was the amount of illumination required. A distinction should here be drawn between the conditions requisite for various classes of libraries, but the following tentative recommendations seem to have a general application, and are in accordance with experience of the conditions met with in a large number of libraries in London.

(1) *Table, Desk, or Newspaper Stand Lighting.*—The illumination where the light is being used should in no case be less than two foot-candles. This value is understood to apply to reading ordinary type printed on white paper. When books printed in small type, or manuscripts, or surfaces having a low reflecting power are to be studied, a higher illumination is necessary, and a tentative value of not less than five foot-candles is suggested.

(2) *Book-case and Shelf Lighting.* — A minimum vertical illumination on the case or shelf of half foot-candle.

(3) *General Illumination.*—A minimum of half foot-candle. Local illumination should be measured on the desk, slope, or table where reading is carried on. Measurements of general illumination should be made on a horizontal surface, 3 ft. 3 in. above the ground. In all cases the illumination to be expressed in foot-candles.

Avoidance of Glare.

The Committee desire to emphasise the importance of adequate methods of shading with a view to avoiding glare from illuminants such as is apt to be trying to the eyes of readers. It is proposed to deal with this point more specifically shortly. Meantime, it is suggested that the light source (*e.g.*, the filament of an electric lamp or an incandescent gas mantle) should not be visible to the reader.

Avoidance of Reflection from the Surface of Paper or Tables.

One of the disadvantages of arranging lights close to a reader is the production of troublesome reflections from the glazed paper or from the tables. The position of lights should, therefore, be selected in such a manner that no rays are reflected *directly* off the polished surface of the paper into the eyes. It is also desirable as a means of minimising this defect that the source of light should be extended over a considerable area (either by means of suitable methods of screening, or by making use of the reflection of lights from white or light-tinted walls and ceiling).

Avoidance of Shadows.

Harmful shadows, particularly those thrown by the readers themselves, should be avoided by suitable arrangement of the lights. The methods suggested under heading (4) are also useful with a view to preventing this defect. Since sharp shadows are cast mainly by direct rays from sources of light of small area, the desirability of making judicious use of the reflection from light-tinted surroundings is indicated. In general it is preferable to avoid materials which are very dark in colour and absorb a great deal of light. Shadows are apt to be cast by the heads of readers examining shelves; with a view to avoiding this, local shelf lighting by well-shaded lamps is sometimes desirable.

The Committee do not at present desire to recommend definitely any particular system of lighting for libraries, recognising that the purpose for which the library is intended (*e.g.*, whether as a reference library for casual reading or for lending books, etc.) must be considered. Local lighting and general lighting have both their respective merits, but in general a combination of the two methods is most advantageous. The comparative advantages of direct, indirect, and semi-indirect lighting are being considered, and the question of the best means of illuminating racks and shelves is also receiving attention. The Committee will continue to act as a centre for information on these subjects. It is proposed to supplement this interim report by a series of more detailed recommendations, and also by some suggestions as regards daylight illumination.

NOTES.

Automatic Accelerated Circulation. In the article which appeared in our issue of July 25, in which we review recent developments in central heating, in the course of which we comment in general terms upon automatic accelerated circulation, in the last paragraph of column 1 we state that "in every case a very slight drop in the boiler temperature will effectively stop the circulation." Messrs. Wheeler, Ridley, & Co., heating, ventilating, and electrical engineers, of Theobald's-road, W.C., write to say that this last remark should be qualified in the case of their patent Hyflo system, as they maintain and make a feature of the fact "that the circulation does not stop when the temperature of the water falls." They inform us that they "can also show numbers of installations of the Hyflo system in which the accelerator is absolutely silent in work and not merely relatively so, and the Hyflo system may be installed to work quite as noiselessly as any 'gravity' or other system, while the pipes may be fixed under conditions quite impossible with the 'gravity' method, and the sizes of these pipes are approximately one-fourth of those required for the latter."

Heating and Warming in Germany. We take the following from the July issue of the *Journal* of the National Association of Master Heating and Domestic Engineers:—"A consular report recently issued by the U.S.A. Government from Washington describes some points in current German practice. It is stated that modern methods of installing hot-water and steam heating were brought to Germany from America, but that the German heating engineers now believe themselves to be far ahead of the United States both in theory and practice. At the larger technical schools, notably at Charlottenburg, Hanover, and Dantzig, regular courses in heating and ventilating engineering have been added to the curricula, and degrees in the subjects, corresponding to bachelor of science and doctor of science, are granted. Scientific study has enabled Germans to compete in this industry with foreigners, not only in Germany but in most other countries where tariff restrictions are not too great. The hot-water apparatus used in South America, Austria, Russia, and the Orient, is almost exclusively German. The German designers have derived much advantage from careful and theoretical study of the subject, particularly in respect of the cost of laying out steam and hot-water systems. An accurate knowledge of efficiencies and capacities of various sizes of pipe suitable to a given scheme enables them often to reduce the factor of safety in their estimates and consequently to plan their schemes with a minimum cost for material. On the question of prices for boilers and radiators it is stated that boilers for warming houses by both steam and water systems are sold on a basis of heating surface. The average price is 50m. to 70m. per square metre (10¾ sq. ft.) heating surface. Radiation on the same basis costs from 6m. to 7m. per square metre heating surface, while an additional 20 per cent. is usually assumed to be a fair price to cover the cost of installation."

Ventilation of Schools. In his report to the Cheshire County Council (Education Department) as Chief School Medical Officer for the year 1912, Dr. Meredith Young, M.D., D.P.H., who is a lecturer in School Hygiene at the Victoria University of Manchester, has some interesting remarks on schools. In dealing with ventilation, he says:—"It is admitted on all hands that architects and medical officers have very much to learn on this question, no matter what kind of building is concerned. As a consequence few, if any, schools are capable of adequate ventilation at all times and under all conditions of climate. That more might be done by teachers in the way of using rationally the means of ventilation they possess in their schools is a matter of daily observation. Gradual education on the subject is our only hope, and this must be brought about by pertinacious preaching and practical demonstration. Fear of fresh air is inborn in a large number of people, and probably owing to the sedentary nature of their occupation, school teachers seem to have got this complaint rather badly. I have even known a head teacher to patch up a tiny hole in a leadlight with postage-stamp paper because, he said, he felt the draught from it acutely." He adds that some progress has been made in the matter of securing better means of ventilation in schools, and says that no opportunity will be lost of effecting further improvements.

Recent Developments in Central Heating. In our issue for July '25, in an article on "Recent Developments in Central Heating," we referred to accelerated systems, and we think a description of the "Kite" accelerators for combined gravity and accelerated hot-water heating apparatus will be of interest in this issue. These accelerators are fittings or connections for fixing in the pipe circuits of ordinary gravity systems for speeding up the circulation automatically or by the application of power, so that heat can be transferred from the boiler to radiating units almost instantaneously when required. The accelerators consist of a four-way junction or fitting having flow and return outlets for piping connection to the boiler, and similar outlets for connecting to the circulating mains. The interior is arranged so as to form a by-pass between the flow and return pipes through which water flows with an injector-like action, resulting in accelerated circulation in both flow and return pipes. This arrangement permits the circulating pipes to the heating system, both flow and return, being run horizontally upon the same level as the boiler floor, thus obviating any necessity for sinking the boiler below the ground level. For further increasing the acceleration by the application of power, the accelerators are fitted with right and left hand propellers; these when driven by small electric or other suitable motor revolve simultaneously in each of the connections to the circulating mains, they are constructed so that when idle they do not obstruct in any way free circulation by gravitation, and when working they accelerate the circulation with considerable force, silently, and equally, in both flow and return pipes. The accelerators are also used in the form of three-way junctions or tee-pieces, both in wrought and cast iron pipes for connecting branch circuits and radiators to the mains, for the purpose of ensuring equal distribution, positive circulation, and obviating any possibility of trouble arising from short circuits.

THE BUILDING TRADE.

STEEL WIRE ROPE *VERSUS* CHAIN.

THE recent deplorable crane accident which occurred during building operations on a site opposite the First Avenue Hotel in Holborn, when one workman was killed and two seriously injured by the snapping of a chain, calls for serious attention on the part of builders and contractors generally.

It appears that the crane, which rested on three wooden columns, was carrying several steel girders at the time and to counterbalance the weight the bottoms of two of the columns were heavily loaded with tons of bricks, and as a further safeguard, an anchor chain was secured to these weights and to the bottom of the back legs of the crane.

The accident was caused by the snapping of one of the links of these connecting chains, causing the crane to topple over and pin the workmen beneath.

The crane at the time was not working at its full capacity of 3 tons as a load of only 2½ tons was being lifted.

From the evidence at the inquest it transpired that the chain (apparently in its entirety) had been tested before being sold to a test strain of 6 tons, but that being only a cheap article, the links (in the words of one of the witnesses). "Had not been examined afterwards because they were only common chains. When 'best' quality the links were examined." Special interest had been taken by the Coroner who, at the close of the inquest, stated:—

"That the grave and serious question in the case was the fact that these structures were allowed to be erected almost haphazard by builders over the streets of London. To him it was perfectly extraordinary that there was no supervision at all of a structure like this. He had taken the trouble to go round to all the appropriate officials to find out whether it was the duty of anyone to inspect, but he found that it was left entirely to the discretion of the builders. People were all inspected in one way or another, yet this public danger was allowed to be erected without any restriction at all."

It is only fair to add that in returning a verdict of accidental death the jury expressed the opinion that the accident could not have happened if the deceased's employers had stipulated what the chain was to be used for.

The interest from the builder's point of view lies in the question as to whether chains should have been used owing to their liability to snap without warning. A good quality steel wire rope would have served the purpose just as well and it would have been possible to notice that it was overloaded by the excessive stretching. Wire rope makers have always made a strong point of this. Again, there is always a much higher margin of safety allowed with rope than chain, so that any overloading would be highly improbable. The fact that cheap quality chains are allowed to be sold without having undergone the proper examination is a serious matter, especially where they are used for stays as in the present case. To inform our readers as to the practice obtaining among makers of steel wire ropes used in building operations, such as for guys, cranes, derricks, etc., and the best method of using them in order to get a good life from the rope, we have obtained the following general information from a well-known firm of steel wire rope makers.

In the first place, this firm insist upon all ropes supplied for cranes being tested at their works before being sent out, and further, they furnish a certificate showing the actual breaking stress. A piece of the actual rope is tested; the result is not arrived at by merely computing the strains of the individual wires from tables.

This practice is no doubt followed by other makers, but to emphasise the point it may be stated that the firm in question also test all the wire used for ropes upon which life is dependant for tension, torsion, wrapping, flexion, and fatiguing before it is made up into the rope, whilst the strands are also individually tested.

The mere fact of testing however, is not sufficient to ensure the safe working of a wire rope, however perfectly it may be manufactured. Other factors have to be considered to ensure getting a good life out of the rope, such as the diameter and shape of pulleys, speed of working, lead of the rope, etc. For instance, to quote from the published data issued by the firm mentioned, pulleys with V-shaped grooves in which the rope does not button, cannot be recommended. The grooves should be accurately machined to take a given size of rope and constructed in such a manner that one third of the rope's diameter is fully supported. To do this the depth of the groove should be approximately one and a quarter times the rope's diameter. Other matters of importance are the regular oiling of the rope with suitable lubricant (that is, minus acid or alkali), frequent examination for broken wires, and the use of the rope in its natural state, *i.e.*, without being galvanised. Then again, when new they should be first run up and down in the working with a heavy load on to take out any stretch or spin that may be left in.

This matter of spinning is one with which builders have for long had to contend. Some time ago a rope was put upon the market that was supposed to be non-spinning. It excited a good deal of interest in the trade, and various tests were made and were reported in the *Engineer* at the time. The results showed, however, that any non-spinning qualities it might possess were more than outweighed by the grave danger it presented owing to the tendency of the inside wires to untwist, causing the whole weight of the load to be thrown upon the outside wires, which, unable to bear the strain, broke. Such a rope would be most unreliable where heavy loads had to be lifted.

From what has been written, it will be seen that to ensure safety the first consideration should be one of quality and not cost. The length of time the rope will last if working under proper conditions and being well looked after will more than compensate for the few shillings difference in price.

The foregoing, of course, apply to the use of ropes on cranes. In the instance under review the chains were only used as stays. It is, however, a growing practice for builders to substitute wire ropes for chains wherever possible, as they are more easily handled, being one-third the weight, taking stress for stress, and smoother in working.

In conclusion, we may state that the Board of Trade and the Admiralty insist upon a proper standard of tests being made for all chains and ropes used for marine purposes and the Home Office would do well to establish a similar rule.

WATERPROOFING CEMENT CONCRETE AND CEMENT RENDERINGS.*

"No intelligent person to-day thinks, as was thought a few centuries ago, that stratified rocks were formed by the tumultuous deposits of the Noachian deluge—that the fossils and shells were the result of a plastic force which had somehow fashioned themselves in the bowels of the earth. We know to-day that sandstone is merely compressed gravel and sand, that consolidated rock *débris* forms a hard mass, and we know that they have been made by enormous pressure and chemical changes owing to percolating water and other causes. If, therefore, we could subject our present-day cement concrete to great pressure—pressure which it is impossible to conceive—and allow sufficiently long lapses of time to allow the chemical changes to take effect, we should have perfectly waterproof stone.

We, however, adopt the next best process—we

* From a lecture delivered at Carpenters' Hall, London-wall, E.C., by Mr. J. H. Kerner-Greenwood, before the Incorporated Clerks of Works' Association of Great Britain.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

——	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Newcastle	10	10	10	10	9½	9	9	6½	6½	6½
Sunderland	9½	10	9½	9½	9½	—	9	6½	6½	6½
Darlington	9	9½	9	9½	9½	8½	7½	6½	6½	7
Stockton-on-Tees	9	10	9½	10	9½	9	8½	6½	6½	6½
Bradford	9½	9½	9	9	9½	9	8½	6½	6½	6½
Halifax	9	9	8½	8½	8½	8½	8½	6½	6½	7
Hull	9½	9½	9½	9½	9½	9½	8½	7	7	7
Leeds	10	10	9½	9½	9	9½	8	7	7	6½
Sheffield	9½	9½	9½	9½	9	9½	8	6½	6½	6½
York	9	9½	8½	9½	9½	8½	7½	6½	6½	6½
London	11½	11	11½	11½	—	11	8 upwards.	7½	7½	7½
Brighton	8–9	8	8	—	—	—	—	—	—	—
Portsmouth	9	9	9	9	—	8	7½	6½	6½	6½
Southampton	8	9½	9	8	—	9	8	6½	6½	5½
Maidstone	8½	8½	8½	—	—	8½	7½	5½	5½	6½
Bristol	9½	9½	9½	9½	—	9½	9	6½	6½	5½
Plymouth	8½	8½	8½	8½	—	8½	7½	5½	5½	5½
Bath	7½	7½	8	8	7½	7½	7	5–5½	5–5½	5–5½
Cheltenham	8½	8½	8½	8½	—	8½	7¾	5½	5½	5½
Exeter	8	8	7½	7½	7½	7½	7½	5	5	5
Gloucester	7½	8½	8¼	7¾	7¼	8½	7½	5½	5½	5½
Hereford	7½	8	7½	8	7½	7	6½	5	5	5
Stroud	7	7	7	7	7	7	6½	4½	4½	4½
Blackburn	10	10	9¾	9	9	9½	9¼	6½	7	7
Bolton	10	10½	10	10½	10	9	9	—	—	—
Liverpool	10½	10½	10½	10	10	10	9½	6–6½	6–6½	6½
Manchester	10	10½	10	10½	9	10	9½	6	6	7½
Oldham	10	10½	10	9½	8½	9½	9½	6	7	7½
Preston	9½	10	9¾	9	8½	9	8½	5½	6	6
Birmingham	10	10	10	10½	9	10¼	9	7	7	7
Derby	9	9	9	9	9	9	8	6	6	6½
Leicester	9½	9½	9½	10½	9	9½	8	7	7	7½
Nottingham	10	9½	9½	10	9	9½	9	7	7	7½
Norwich	8	8	8	8	8	8	6½	5	5	5
Cambridge	9	8½	8½	9	8	9	7	5½	5½	5½
Oxford	8½	8	8	8½	8	8½	7	5½	5½	5½
Southend	9	9	9	9	Piece-work	9	7	6	6	6
St. Albans	8½	8½	8½	10	8½	8½	7½	6	5½	6
Grays	—	10	10	—	—	—	8½	7	7	7
Cardiff	9½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Swansea	9	8½	9	9	8½	8½	8½	6	6	6
Newport	9	9	9	9	8½	8½	8½	6	6	6
Chatham	8	9	8½	9	9	8½	7	5½	5½	5½
Birkenhead	10½	10½	10½	10	10	9½	9½	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

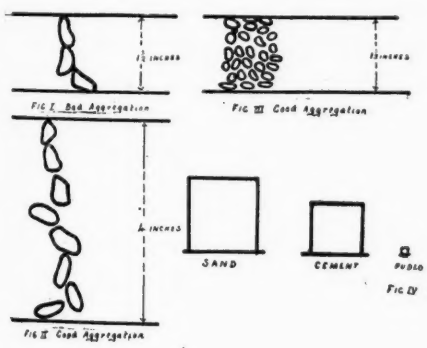
grade our aggregates down to the merest fraction, to perfectly fill all spaces or voids in the concrete. We use the hardest and least porous materials, and bind them with the strongest cementitious pastes. We have proved the best aggregates to be such non-porous materials as cleaned, washed pit-gravel, shingle, river ballast, granite chips (without white mica or felspar), sharp broken flints; while porous aggregates, such as clinker, brick, and sandstone, are the worst possible for producing a waterproof concrete.

We have also found sand to vary in quality. The best is washed river or pit sand, and it feels gritty under the finger. The grading of the larger aggregate is a most important factor to success. For instance, if 1½-in. cement roof were stipulated to contain nothing but ⅝-in. gravel and sand mixed—say, two gravel, one sand, one cement—you would here and there find this arrangement of the gravel in a sectional cut. (See Fig. 1.)

This proves three things—that the aggregate is too big for the thickness of the roof, quite apart from its uniformity, and that if the aggregate were a porous material, like broken brick, percolation would inevitably ensue.

If the roof were 4 in. thick, this size aggregate would be all right (and even better if it were graded down to, say, ¼ in.). (See Fig. 2.) I have drawn them all ⅝ in. to show the impossibility of porosity by juxtaposition occurring, as it does in Fig. 1.

A roof only 1½ in. thick can be made waterproof if the aggregate is proportioned to the thickness of the roof. A good tight roof is made with one and three-quarter parts of ¼-in. aggregate, three-quarter parts of sand, and one of cement, and this is the resultant section. (See Fig. 3.) Half the space is filled with cement and sand, and the other half with the aggregate. But you, being practical men, know that even this care will not alone produce a watertight concrete. It is well known that cement is not quite waterproof, and every day I have proof of this by the number of cases of



porous work reported to me. Until the advent of a waterproofing medium, we had not been able to compete with Nature in the formation of rocks and impervious stone."

The lecturer then gave an account of the cement waterproofing powder called "Pudlo," the patent rights of which he has purchased, and has since put the material before the public, being influenced in doing so by Messrs. Faija's analytical certificate that, "so far as they could see, there was nothing in the powder which would be likely to react detrimentally on the cement after prolonged periods." Both Messrs. Faija and Kirkaldy tested it—the former for tensile strain and the latter for compressive strain—and in each case the powder increased the strength—only slightly, but enough to show that engineers and architects are not running any risk in using it. He had recently had tests for porosity made by Mr. Faija, with very gratifying results; but a practical test would appeal to practical men, and so he would ask them to make two pats of cement concrete or mortar, one pat with the powder and the other pat without it. The full instructions were on page 15 of his firm's book, and the result would convince anyone that cement was nearly non-porous, and that with the addition of the powder it was thoroughly waterproofed. Nothing could be simpler than the use of the powder. Being a powder, it was mixed with a powder (cement): it was, he considered, the safest method of impregnating cement, and was undoubtedly a great factor towards freedom from failures. He was constantly being asked whether the powder would help the worker, and especially whether it assisted the setting and would stop running water. Flowing water could not be stopped by a rendering of cement until the cement had set. The water must be kept away during the progress of the work and for at least seven days after the work had been executed. The "Pudlo" powder did not affect cement in any way except to waterproof, slightly strengthen, prevent efflorescence, make the cement work up easier, and to give a finer surface finish. For the latter reason many cement stoneworkers used the powder, for not only did they obtain a fine texture with a dense and stonelike finish, but the arrises were more pronounced, and the stone more saleable, on account of its bright, fresh appearance after soaking rains. The powder also rendered hair cracks in cement less visible. When non-Pudloed cement was dry, it sucked in moisture through these fine cracks, and with the moisture the soot, etc., which was held in solution in rain and snow. Pudloed cement threw off the water, and so the orifices or mouths of the cracks were unmarked by the entrance of the soot. Concrete stonemakers only used a ⅛-in. (or less) skimming of two parts sand to one part of cement (to every 100 lb. of which latter 3 lb. of "Pudlo" has been added). This was trowelled on while the block was damp and fresh from the mould. A few negative actions were:—The cement face was not made greasy. The setting qualities were unaffected. It did not bleach the cement; but, instead, it gave it a uniform clean tint. There was no odour. There was nothing poisonous nor injurious to health. It never deteriorated nor decayed, either in work or in stowage. It never lost its waterproofing qualities.

WAGES IN THE BUILDING TRADE.

ABERDEEN.—The Chief Industrial Commissioner has appointed Sheriff-Substitute A. J. Louttit-Laing to act as Chairman of a Conference to be held to consider the by-laws for the various sections of the Aberdeen granite workers, the Conference being called in accordance with an agreement arrived at on May 23 between the parties.

BATLEY.—The masons and bricklayers in this district, who had been on strike for more than a week, have now resumed work. The terms of the settlement involve ½d. per hour advance of wages (8½d. to 9d.) as from August 1, with a further similar advance on January 1, 1914.

DEWSBURY.—The masons in this district have now returned to work after a strike lasting over a week. The masters have granted ½d. per hour advance in wages (8½d. to 9d.) as from August 1, and a further ½d. on January 1, 1914.

DONCASTER.—The labourers in this district, after being out on strike for some time, have all returned to work on the same terms as existed before the strike.

OSSETT.—The dispute with the masons has now been settled. the men receiving ½d. per hour increase in wages as from August 1 (8½d. to 9d.), and a further ½d. on January 1, 1914. Difficulty is being experienced with the joiners in this district, who, although requested to appoint representatives on the Local Conciliation Board, have declined to do so, and are now seeking the assent of the Joiners' Executive Council to going out on strike. The men are asking for an increase in wages, and the employers have offered ¼d. now and a further ¼d. in January next, but this has been declined.

SELBY.—The strike of bricklayers and bricklayers' labourers, which had been in existence for several weeks, has now been brought to an end, the men returning to work at an increased rate of wages. The rate for bricklayers is now 9d. per hour, and for bricklayers' labourers 6½d. per hour.

SHEFFIELD.—The Sheffield Branch of the Amalgamated Slaters and Tilers of England Provident Society having made application for an advance in wages and certain other alterations in the working rules, and the Sheffield Master Builders' Association having also suggeted alterations, meetings took place between the parties, as a result of which the whole of the suggested rules were mutually agreed to, with the exception of the rule in regard to the boundary. The parties agreed to refer this question to an arbitrator, and application having been made to the Board of Trade, the Chief Industrial Commissioner has appointed Mr. Charles Doughty to act in that capacity.

TRUSTEE BUILDINGS, KINGSWAY.

In connection with a short paragraph on page 171 of our last issue relating to the erection of new offices in Kingsway for the Public Trustee we are informed that an error was made in describing Messrs. T. H. Kingerlee & Sons as the general contractors. Messrs. Kingerlee are the contractors for the substructure, but Messrs. Galbraith Brothers, Ltd., of Camberwell, are the general contractors for the superstructure.

THE LONDON BUILDING TRADE.

It is reported that considerable trouble exists in the London building trade in the relations of masters and men, but beyond the statement that the matter is engaging the careful attention of the London Master Builders' Association we believe there is nothing definite to report.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council: R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERDEEN.—Improvement at the beach, estimated to cost £15,000, are being considered by the Bathing Committee of the Corporation, including additional refreshment-room accommodation, for which Mr. Dyack will prepare plans. A scheme is being considered by the Directors of the Glaciarium to convert their large building at Forbesfield-road into a swimming-bath.

Ashby-de-la-Zouch.—The Leicestershire E.C. have rented land on which to erect a housewifery centre.

Banbury.—Plans passed:—For additions to his house in High Town-road for Mr. G. H. Farley; for a motor-shed and timber-shed at their premises in Fish-street for Messrs. Hunt, Edmunds, & Co., Ltd.; for additions to a house in Crouch-street for Mr. J. H. Carpenter.

Barnard Castle.—Plans approved for proposed additions to the children's block at St. Peter's Home, Gainford.

Barnsley.—The T.C. have decided to alter the Smallpox Hospital for use as a sanatorium.

Barton-on-Humber.—The U.D.C. have refused to pass plans for a number of cottages on the Barrow-road unless the owner would substitute water sanitation for earth.

Bellingham.—The U.D.C. have agreed that the Surveyor submit plans and estimates of new sewerage scheme for the villages of Greenshaugh and Lanehead to the next meeting.

Beverley.—New building in Holme Churchlane for Messrs. Overton Bros.

Blackburn.—The L.G.B. have held an inquiry into an application of the Corporation for power to borrow £2,330 for improvements in Victoria-street, £4,650 for widening Bolton-road near the Infirmary, where it was proposed to erect a tramway shelter, and £3,800 for the construction of a new thoroughfare at Skew Bridge, Whalley New-road.

Bolton.—Plans passed:—Messrs. Thos. Hardcastle & Sons, Ltd., addition to office at Firwood; Messrs. Leigh Bros., Ltd., house and shop and lock-up shop in Ainsworth-lane; Messrs. Rusden & Co., Ltd., addition to mill in Bury-road; Messrs. Entwistle & Gass, Ltd., addition to works in Nelson-street; Earl of Ellesmere, new streets and levels off Sapling-road (Normanby-street); Messrs. Hughes Bros., nine houses in Normanby-street; Messrs. Tootal Broadhurst, Lee, & Co., Ltd., new weaving-shed at Sunnyside Mills (Barrier-street); Mr. T. Woods, block plan for houses off Tudor-street; Mr. J. Wild, petrol store in Clarence-street; Astley and Tyldesley Collieries, Ltd., office at Crook-street sidings in Crook-street; Mr. J. Higson, motor garage in Chulsey-street; Messrs. Cannon Bros., cotton store in Back Maple-street; Melrose Mill Company, Ltd., engine-house in Bury-street; Messrs. Thos. Cross & Co., Ltd., addition to works in Mortfield-lane; Messrs. J. Marsden & Sons, Ltd., new boiler-house to No. 4 mill in Sidney-street; and Messrs. Johnson, Hodgkinson, & Pearson, Ltd., addition to mill in Cross-street.

Bournemouth.—Extensive alterations are projected at the Lansdowne Hotel.

Bristol.—The justices have approved of the application of Mr. G. Pugsley for the erection of a picture theatre, to accommodate 1,056 persons, to front on Jane-street.

Chorley.—Messrs. Baxendale Bros. are the contractors for a new weaving shed being erected by a company composed of Liverpool, Manchester, and local people.

Darlington.—The T.C. have decided to have plans prepared for a new department at Dodmire School, estimated to cost £5,000, and to submit plans to the Board of Education for a new department to the Gurney Pease Infant School. They have also passed the following plans:—Mr. E. Hill, alterations to premises in Tubwell-row; Mr. G. W. Davis, two houses in Pierremont-drive, alterations to premises in Northgate, two houses, Garden Suburb, showrooms, workshops, etc., Clay-row, and two pairs semi-detached houses, Garden Suburb; the Rolling Stock Company, extension to workshop, Nestfield-street; Mr. J. E. Chilton, house in Farrar-street, twenty-one houses, Hamsterley-street, addition to house, 47, Harcourt-street, two houses, Hazel-street, two houses, Dene-grove, and house and shop, Acacia-street; Messrs. R. Blackett & Son, two houses, Tower-road, three houses, Bloomfield-road; Messrs. W. Richardson & Co., alterations and additions to boiler-house, Greenbank Hospital; Mr. H. D. Pritchett, alterations and additions to offices, Victoria-road.

Dewsbury.—A new Sunday-school for the Ebenezer United Congregational Church is approved. The T.C. have approved of the following plans:—Mr. William Lucas, six houses off Wakefield-road; Messrs. Hepworth & Haley, new mill premises, Camroyd-street, Dewsbury: Messrs. A. Hirst & Sons, Ltd., motor-shed, Meadow-lane, Dewsbury; and Messrs. Thornton

* See also our list of Competitions, Contracts, etc., on another page.

& Son, new warehouse and offices, Mill-street West and Savile-road, Dewsbury.

Doncaster.—The L.G.B. have held an inquiry into the application of the R.D.C. to borrow £6,300 for sewerage works. It was stated that owing to the development of Askern Colliery it was anticipated that there would be a great increase in the population in the area.

Durham.—The R.D.C. have approved plans of an addition to Coxhoe Workmen's Club, and a dwelling-house at White House Farm, for Durham University.

East Molesey.—The U.D.C. have adopted a proposal which involves the construction of a riverside boulevard, extending a distance of about half a mile, from Molesey Lock to the boundary of the parish at Hampton.

Edinburgh.—The Dean of Guild Court have issued the following warrants:—City, extension to the blood-house, slaughter-houses, Gorgie; Craiglockhart Building Company, five villas at Lockharton-crescent; Professional and Civil Service Supply Association, extensive new premises at 26 and 28A, Frederick-street, connecting with their premises in George-street.

Falmouth.—The L.G.B. have sanctioned a loan to the T.C. for the erection of workmen's dwellings on the lines of the amended plans, which provide for a parlour, and a little larger back garden than previously arranged for. The loan is for £8,928, to erect forty-four workmen's dwellings at Trevethan-lane. An additional sum to provide tenants with gardens has also been approved.

Glasgow.—The Dean of Guild Court have issued the following warrants:—Glasgow Corporation, shops and warehouses in High-street; Messrs. Dobbie, M'Innes, Ltd., 57, Bothwell-street, machine shop and offices at 195, Broomloan-road, Govan; Glasgow School Board, school and janitor's house in Calder-street; Messrs. Barclay, Curle, & Co., Ltd., shipbuilders and engineers, Clydeholm, Whiteinch, additions to offices in South-street; Mr. Thomas Kay's Trustees, alterations on tenements in Cathedral-street, John-street, and Love-lane; Glasgow Corporation Electricity Department, switch-house and transformer-house at Partick Station, Mauldslie-street; Messrs. Watson, Laidlaw, & Co., Ltd., 98, Dundas-street, extensions to their workshops in Dundas-street and Kinning-street; Glasgow Parish Council, 266, George-street, verandah to the Children's Home at Stobhill; Messrs. G. & J. Weir, Ltd., Holm Foundry, Cathcart, road bridge over the River Cart opposite Rannoch-street, Cathcart; the Scotstoun Estate Building Company, 86, Park-drive South, Whiteinch, ten self-contained houses on the north side of Park-drive North and Brunswick-avenue, Partick; Messrs. Gray & Co., builders, 101, St. Vincent-street, two four-story tenements of dwelling-houses at Newlands and Exeter-drive, Partick.

Gosport.—The Education Committee has decided to buy an acre of ground alongside the new church ground at Bedenham upon which to erect a school.

Grays.—Plans have been approved by the Joint Hospital Board for the erection and furnishing of a new pavilion at the hospital (£3,164).

Hartley Wintney.—The L.G.B. have sanctioned the R.D.C. borrowing £4,550 for sewerage works, the plans of which have been prepared by Mr. Moss Flower.

Higham Ferrers.—It is reported that a restoration of the old Chichele College is contemplated.

Horncastle.—Plans for a house at Scamblesley for Mr. Ironmonger have been approved.

Hornchurch.—Council school for 300 children in Malvern-road.

Ipswich.—The T.C. have decided to add a new wing to the sanatorium, the estimated total cost of which is £6,000; and also to reconstruct the sewer from Major's Corner to the Cemetery-road, at an estimated cost of £550.

Kibworth Beauchamp.—Cinema hall.

Kirkham.—Two houses in Nelson-street for Mr. J. Marquis.

Leeds.—Temporary hospital for tuberculosis by Corporation (£1,600).

Leicester.—A Committee of the Board of Guardians will confer with the L.G.B. Architect with regard to the accommodation at North Evington Infirmary.

Leith.—The Leith Harbour and Docks Bill has passed Parliament. The proposed works include the construction of a breakwater on the west side of the harbour, between Newhaven and the West Pier enclosing an area of about 100 acres; the extension of the Imperial Dock eastwards for an additional length of 600 ft.; the extension of the embankment of the Imperial Dock in the same direction so as to reclaim an area of about 25 acres to the north of the Edinburgh Dock; and the formation of two new breakwaters outside of the harbour entrance into deep water. The cost is estimated at about £300,000 for all the works except the outside breakwaters, which would cost about £200,000 more.

Louth.—Picture palace for Mr. Fowler.

Malling.—Plans approved:—Additions to laundry premises at Hale-street, East Peckham, for Mr. R. Tester; bungalow at Ditton for Mr. H. W. Tucker; warehouse and store at Paddlesworth-road, Snodland, for Messrs. C. and D. Thomson; two cottages at New Hythe-lane, East Malling, for Mr. S. Lee Smith; stores at High-street Wouldham; stables and store at Ditton for the South-Eastern Agricultural College, Wye.

Maltby.—Lord Scarborough has offered to build and equip a hospital in memory of the late Lieut. R. A. Ashton.

Manchester.—Guinness Brewery Company propose establishing a branch brewery The site secured is about 100 acres in extent, at the Barton end of the Trafford Park Estate. The purchase marks the preliminary stages of what will undoubtedly be the biggest development yet recorded in the history of the Ship Canal, upon which the site selected has a substantial frontage.

Market Bosworth.—The R.D.C. have decided to take steps at once to erect twenty workmen's houses at Desford, under the Housing Act.

Newcastle-on-Tyne.—The B.G. have decided to install system of heating and hot-water supply for the hospital block at the Workhouse, at a cost of £4,030.

Nottingham.—A site of 40 acres of land fronting the Victoria Embankment, and towards the Wilford Bridge end, has been rented from Colonel Sir Hervey Bruce for the Universal (1914) Exhibition. The project has received official approval, and it is estimated that the setting-out of the exhibition will cost £130,000. The building itself will have floor space of about 550,000 sq. ft.

Padiham.—Weaving-shed at Higham for Messrs. S. Duckworth Bros.

Pershore.—The R.D.C. have decided to ask the sanction of the L.G.B. to the erection of four cottages at Peopleton, if the property owners decline to do so.

Port Talbot.—The U.D.C. have decided to seek sanction of the L.G.B. for a loan of £5,626 for housing purposes, and to have plans prepared for a public library. Plans for a new chapel at Taibach, and also a new theatre in Port Talbot, have been passed.

Preston.—The Housing Committee of the B.G. have been authorised to get complete plans prepared for a nurses' home at the Workhouse, Fulwood.

Redcar.—The Race Company have given instructions for a scheme to be prepared for additional stabling accommodation on the racecourse, and also to erect a cloak-room and lavatory.

Rutherglen.—Street improvements (£4,000).

Shoreham.—The West Sussex E.C. have approved plans for the new school, estimated to cost £4,255. The estimate for alterations and repairs to the present school is £492.

Slough.—Stable for Messrs. G. E. Dodd & Son, High-street.

Sowerby Bridge.—A site has been purchased by the Roman Catholic Church on which to erect a church school, parish hall, and presbytery.

Stockton.—The L.G.B. have sanctioned the T.C. borrowing £2,750 for alterations and additions to the Bowersfield-lane Schools.

Swanage.—Plans deposited by Mr. G. Hardy for a new Liberal hall have been passed.

Tewkesbury.—The L.G.B. have sanctioned the R.D.C. borrowing £2,300 for a water scheme for Ashchurch.

Thornton.—The Highway Committee have agreed that consent be given, if required, to land being used for the proposed extension of the parish church by building over the present private road.

Tunbridge Wells.—The late Mrs. Marion Smart has bequeathed £10,000 to the Homœopathic Hospital, conditionally on a wing being built in memory of her husband.

Upper Renfrewshire.—Plans passed:—Workshop at Victorian Pottery, Barrhead, for Messrs. Shanks & Co., Ltd., Barrhead; pattern shop at Yoker for Messrs. Bull's Metal and Melloid Company, Ltd., Yoker; additions to works in South-street, Scotstoun, for the Albion Motor Car Company, Ltd., Scotstoun; and additions to offices in Harvey-street, Yoker, for Messrs. Halley's Industrial Motors, Ltd., Yoker.

Walsall.—Offices, etc., for Gas Department; new stores, etc., in accordance with plans prepared by Borough Surveyor (£1,850).

Wantage.—Alterations and additions to Wesleyan day schools.

Ware.—Plans passed by R.D.C.:—Alterations to the Round House, Ware, for Mrs. R. P. Croft; addition of a parlour at the Nag's Head, Well Pond Green, Standon, for Messrs. McMullen & Son; alterations to White Hill Farm, Little Munden, for Miss D. Vernon; and alterations and additions at Libury Hall, Little Munden.

Warrington.—Rebuilding of Crown and Sceptre Hotel, Buttermarket-street, for Messrs. Greenall, Whitley, & Co. A sub-committee of the B.G. has been appointed to formulate a scheme for new poor law offices.

Weardale.—Improvements to buildings at sewage farm for R.D.C.

Wellington.—A scheme for railway extensions and developments at Wellington has been prepared by the engineers for the Great Western and London and North-Western Railway Companies. Drawings for part of the scheme have already been presented to the U.D.C. for their approval and a Committee has been appointed to meet the engineers to the companies prior to the commencement of the work The railway-station alterations and the erection of a new post-office in Walker-street, where a central site has been purchased, will provide employment for a large number of workmen. Between £4,000 and £5,000 will also be spent by the local Council on a housing scheme for workmen's dwellings, and many new villas are being erected on the Forester Estate, near the Wrekin and Wellington Golf Links.

Westhoughton.—Plans passed:—Mrs. Ed. Bullough, house, New Brook-road; Mr. James Booth, cowshed, Old Sirs, Farm; Westhoughton Coal and Cannel Co., alterations to shippon, etc., at Burnt House Farm.

Widnes.—The T.C. have given instructions for plans to be prepared for the improvement and extension of the hospital, and (alternately) plans for the construction of a new hospital on the site.

Willington.—Plans passed by the R.D.C.:—Six houses at Willington by Mrs. Robinson; and Presbyterian Church, proposed to be built at Willington.

Winchester.—The T.C. have accepted plans and estimates for the provision of fifteen slipper-baths and two vapour-baths, at a cost of £2,500, on the site chosen in North Walls.

DRILL HALL, FORT WILLIAM.

A new drill hall with miniature rifle-range, armoury, etc., has been recently erected by the War Office at Fort William. The architect for the work was Mr. J. Falconer.

GENERAL BUILDING NEWS.

NEW CHURCH AT KILCOLMAN.

Mr. B. E. Sheehy, of Limerick, is the architect for the new church of St. Colman, which is being erected. The builder is Mr. George Ryan, also of Limerick.

SCHOOLS AT WOLVERHAMPTON.

New elementary schools have recently been opened in Hordern-road at an estimated cost of £11,690. The building contains a large assembly hall, classrooms, cookery-room, etc., and will accommodate about 800 children. The architect for the work was Mr. T. H. Fleeming.

FATHER STANTON MEMORIAL.

It is proposed to build on to William Butterfield's Church of St. Alban, Brooke-street, Holborn, a Lady Chapel, which shall contain a monument and effigy of Father Stanton. The estimated cost is £10,000. Plans have been prepared by Mr. J. N. Comper, Knight's-hill, West Norwood, S.E., a pupil of Mr. G. F. Bodley, who, with Mr. Thomas Garner, designed the triptych in the church.

TRADE NEWS.

Boyle's latest patent "air-pump" ventilators have been employed at Dinnington Picture Palace, Dinnington, Yorks.

At a recent exhibition held in connection with the seventeenth meeting of the International Congress of Medicine a gold medal was awarded to the proprietors of Ronuk Polish for their sanitary polishes and appliances.

The Royal Forest Hotel at Chingford, which was recently burned down, has been rebuilt. The hotel is half timber and rough-cast. In order to make the cement work waterproof the powder Pudlo, manufactured by Kerner-Greenwood & Co. at King's Lynn, was used.

On the 14th inst., at the Whitehaven Union Workhouse, the new engineering scheme was formally inaugurated in the presence of a large gathering of Guardians and their friends. The whole of the work, comprising steam generating plant, centralised heating, and hot-water service installations on the forced circulation principle, also bathing and disinfecting appliances, has been carried out by the Brightside Foundry and Engineering Company, Ltd., of Sheffield, from the designs and under the superintendence of Messrs. Beswick & Davis, consulting engineers, of Whitehaven.

Referring to the "Note" which appears in our issue of August 8 as to the "Construction of the Reinforced Concrete Dome for the Melbourne Library," we may mention that not only was the reinforcement of the dome supplied by the Trussed Concrete Steel Company, Ltd., but the designs for the reinforced concrete work were prepared by their engineers.

The new hospital, Bootle, is being supplied with Shorland's patent exhaust roof ventilators and special inlet ventilators by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

YORKSHIRE FEDERATION OF BUILDERS.

At the last monthly meeting of the Yorkshire Federation of Builders, held at the Central Café, Scarborough, when Councillor Mallinson, Huddersfield, presided, the report of the Industrial Council, of which Sir George Askwith is Chairman, in regard to industrial agreements, was received. The report recognised that the present Conciliation Boards in operation in the building and other trades were effectually answering their purpose, and the Council did not recommend any interference with them. The report of the building trade is in favour of the recognised rules of the trade, of wages, hours of labour, etc., as agreed between the operatives and the employers in the various towns being made compulsory on all engaged in the trade. This received the approval of the Industrial Council. Reports were received from a number of Yorkshire towns that the Conciliation Board had been able to settle various matters in dispute without the necessity of striking. The members attending the meeting were entertained by the Scarborough association, of which Councillor Malton is President.

STRIKE OF CONTRACTORS' WORKMEN, LONDON.

The men employed in building the new hotel which is being erected by Messrs. J. Lyons & Co. at Piccadilly-circus have struck work on the ground that the contractors, Messrs. John Mowlem & Co., had engaged several non-union labourers. In all about three hundred and fifty men have left their work, including labourers, steel-workers, carpenters, engineers, and terra-cotta workers, and proceedings are at a standstill.

THE TAXATION AND RATING OF LAND VALUES.

By JOSEPH FELS.

THE policy known as the taxation and rating of land values has been described by its opponents in many ways. Stated on broad lines, in a few words, the proposal is that public revenues should be raised by a uniform levy on land values and that all improvements should be rate and tax free. The value attaching to land purely as a result of the natural opportunities and advantages its occupation makes available, by right the property of the community, should be taken for the community, the value attaching to improvements, the result of industry and enterprise on the part of individuals, therefore by right solely the property of individuals, should be left sacredly and entirely to individuals.

Supporters of the policy have been told that it is an unjust proposal, the penalising of a class, confiscation, and a whole dictionary-full of other bad things. Let us first examine the contention that it is unjust for the State to appropriate land values for public purposes, for if a policy is unjust there is nothing else to consider, so far as I am concerned at any rate. Think for a moment what it is that creates land values. No individual has made the land; it has been for all eternity. And the value that attaches to land is the result of nothing that any individual does to it. What gives land its value is the competition between individuals for the use of particular sites. In other words, it is the presence of population. Particular plots of land have exceptional advantages over other plots of land, owing to the special facilities they offer for wealth production. Competition is keener for such plots than for less advantageous sites, and consequently land value is high in such places. By no stretch of imagination can land value be claimed as the product of an individual. The performance of public services makes possible the better enjoyment of the special opportunities offered by particular sites, and is thus an important factor in maintaining land value. Surely it is only bare justice that the cost of public services should be taken from the fund their performance helps to maintain; that the cost of public needs should be met from the publicly-created fund.

Practical Proposals.

To get down to practical proposals. The policy which is now being advocated by the supporters of land values taxation as an immediately practical step may be briefly stated as follows:—

1. That local authorities should be empowered to levy rates on the basis of land value as ascertained by the Budget valuation, with certain modifications allowing for the exclusion of the unexhausted value of agricultural improvements and the inclusion of such values as are added to land by all kinds of franchise licences and by the presence of minerals, whether being worked or not.

2. That a Budget Tax should be levied on all land values to be applied: (*a*) In providing a national fund to be allocated toward the cost of such services as Education, Poor Relief, Main Roads, Asylums, and Police, thereby reducing the local rates; and (*b*) in substitution of the duties of tea, sugar, cocoa, and other articles of food.

The proposal to remove the charges for such admittedly national services as Education, Poor Relief, Main Roads, Asylums, and Police from the local to the Imperial Exchequer is generally recognised as an immediate necessary reform. So much being granted, the question arises as to how the additional revenue required by the Treasury is to be raised. In the last analysis taxes can be raised in one of two ways: (1) From the earnings of industry, or (2) from the publicly created fund, land values. Taxes on industry discourage enterprise and production, restrict employment,and have a lowering effect on wages. A tax on land values, on the other hand, will have a beneficial effect on all kinds of industry, inasmuch as it will have a direct effect on the power of land monopoly, reducing rents, throwing open to production thousands of square miles of land, which, although suitable for industrial or agricultural development, is now held idle or greatly undeveloped. By thus extending the fields for production, opportunities for labour will be increased, resulting in higher wages, and sites for much-needed houses and cottages will be available on reasonable terms. Those holding an interest in land value, having, under the taxation of land values, to contribute annually to the Treasury a certain sum, irrespective of the use to which the land is put, will be influenced to put their land to its most productive use or release it to those willing to do so. In place of the existing state of affairs, where producers are forced to compete with each other for the privilege of paying monopoly rents for access to a restricted area of land, we shall have all landowners in competition to secure tenants. Such a reversal of conditions, it is easy to see, will have a marked effect on rents and the opportunities of labour for employment.

Rating Reform.

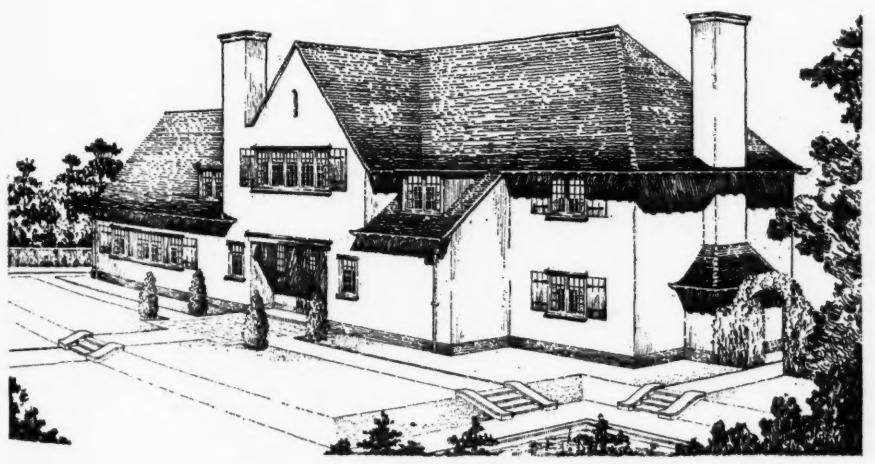
Coming now to the proposal for changing the basis of rating from improved or composite value to land value, contributions to the rates are at present fixed according to the yearly value of the property assessed—houses occupied and premises where trade and commerce are carried on—unoccupied property being rated either not at all or at a purely nominal figure. Such a system is based on the value of the use which is made of land. The occupier who puts it to its best use is most highly rated, he who puts it to an inferior use is less highly rated, and he who puts it to no use at all is not rated. This is a deliberate discouragement to the best use of land, and encouragement to the inferior use of land and an incitement to the withholding of land altogether from use. Take the case of London, which is typical of all large industrial centres. Twelve thousand six hundred acres, or 16 sq. miles of land within the County Council administrative area, suitable for building, is vacant, exclusive of parks, open spaces, and the like. One-seventh of the area of London withheld from use, and the owners contributing nothing to the rates! Think what this means to the ratepayers—the additional burdens they have to bear because these landowners, enjoying a value they have done nothing to create, and which is entirely due to the growth and industry of the whole community, escape rate free. Think what it would mean to the workers of London if all this highly-productive land were open to industry—its effect on the unemployed problem and the low wage problem.

Let us now look at the man who carries out considerable improvements on his premises, and thereby gives employment to various labourers, artisans, manufacturers, architects, and other workers, to say nothing of incidentally adding to the attractions of the city. Such conduct, instead of being regarded by the community as praiseworthy, is treated as a criminal act. Criminals are fined once and for all, but the man who improves his property is fined (rated) over and over again for the same "offence"; in fact, so long as the improvements he has made remain in existence. The only way he can get relief from these recurring fines (which we call "rates" by way of making them more pleasant to pay) is by demolishing the improvements.

Business men cannot but admit the truth of this, only they have never perhaps considered the matter much, and ask what alternative there is. The answer is, to adopt the policy I have mentioned: assess the value of land separately from the value of the improvements upon it, relieve the improvements from all rates, and make the economic value of the land itself the sole basis of assessment. Many municipalities in the colonies have tried the policy, and the result will satisfy any honest inquirer. Under this system business men would be free to improve their property to their heart's content, to spend capital and employ labour on its development to any extent they pleased without having to pay one penny extra in rates. On the other hand, the owner of a valuable site which is not being put to its best use would have just as much to pay in rates as if his site were fully improved. He would no longer find it profitable to keep such valuable land idle or only partially developed, and would either develop it himself or let someone else develop it, so that it might earn the wherewithal to pay the rates.

This simple reform, wherever introduced, has brought about an all-round and lasting improvement in trade, especially in the building trade, and it is certain that its introduction here would have a similar effect. In Queensland all rates are levied on the land value basis. In New South Wales practically all local authorities rate on land values only. South Australian local authorities have power to rate on land values, and an increasing number of municipalities have adopted the system. In New Zealand local authorities have power to rate on land values only, and eighty municipalities, including Wellington, Christchurch, Invercargill, Palmerston, and other large towns raise their general revenue in this way. In Western Canada the system is in operation in many municipalities, and the rapidity with which other municipalities are adopting it is remarkable, and a sure testimony to the benefits claimed by its advocates. Business men with experience of the working of land values taxation are in no two minds as to the desirability of the reform, as witness the following extract from a circular recently issued by the Guaranty Fire Insurance Company of New York:—

"Taxes on buildings take a large part of the rental income; they are abnormal and burdensome upon owners of existing buildings and



House to be erected at Cobham.

Mr. Reginald C. Fry, Architect.

This house has been designed for those who prefer one large spacious room for living in generally to the conventional small rooms devoted to particular purposes. One of the chief advantages of the division of the ground floor of the ordinary house into two or three small rooms is the facility it grants for isolating the casual, or the possibly unwelcome, caller from the life of the house; and another is that the table can be laid and cleared by the servant more or less unseen. With the design under consideration both these advantages have been retained. The "Study Waiting-room," on the left of the main entrance, gives privacy for the caller and the ensuing interview, and the "Dining Recess," more or less cut off by the timber screen, probably assisted with curtains, enables the meals to be forgotten when done with.

The secondary staircase is a necessity in a house of this size; it enables the servants to do all the upstairs work without intruding on the occupants of the large living-room, which thus becomes as private and free from observation as need be. The walls are covered with rough-cast; the roof with brown tiles. There is a plum-brick plinth, and the porch and loggia are paved with red brick on edge. The shutters are painted green, which has the effect of greatly brightening the elevations. The front door and beams to porch and loggia are of oak.

an effective preventive to new building operations.

There is, however, a decided and widespread tendency to relieve existing and proposed buildings of this expense by reducing, or eliminating, this restrictive tax. This has already been effected with gratifying results in some sections of the country, and as a consequence New York, Boston, Pittsburgh, Cleveland, St. Louis, Kansas City, Seattle, Portland, etc., are now seriously considering the adoption of a similar system of taxation. Bills embodying this idea are now before the legislature of certain States, and so strong and determined is the support given this measure that it may soon be adopted in some sections, which will force others to do likewise in order to compete.

As evidence of actual results and indications of this tendency, the Tax Commissioner of Houston, Texas, states: 'The effect resulting from partial exemption on improvements on land and personal property in Houston, Texas, has been magical. In the first six months of 1912 there were 219 more buildings erected than in the corresponding period of 1911, and the value of these buildings erected in 1912 amounted to three times the value of the buildings erected in 1911, which goes to show that the partial exemption of improvements and personal property from taxation had the effect of stimulating the building industry.'

Another striking illustration of the effect of untaxing buildings is the marvellous increase in building operations, improvement in quality of construction, and the volume of bank clearings recently experienced in Western Canada, as shown by the following reports:—

	Building Permits.		Bank Clearings.
	1911.	1912.	1912.
	$	$	$
Vancouver, British Columbia	17,652,642.00	19,428,432.00	633,118,777.00
Edmonton, Alberta	3,660,327.00	14,446,819.00	220,727,617.00
Calgary, Alberta	12,907,528.00	20,394,220.00	275,491,303.00
Winnipeg, Manitoba	17,716,750.00	20,475,350.00	1,537,817,524.00
Victoria, British Columbia	4,260,315.00	8,208,155.00	183,544,238.00
Regina, Saskatchewan	5,099,348.00	8,047,309.00	115,727,617.00
Moose Jaw, Saskatchewan	2,475,736.00	5,275,797.00	83,090,448.00

NOTE.—Permits for forty-four cities, 1911, were $135,000,000.00. Permits for forty-six cities, 1912, were $196,000,000.00. Total, $331,000,000.00.

In explanation of these remarkable results, about three hundred thousand (300,000) good business men and farmers, after careful comparison of all conditions, have recently emigrated to Western Canada. This clearly indicates that this section offered some special inducement over Washington, Oregon, Ontario, etc., especially since the latter territories are better settled and have as good land, climate, railroad facilities, etc., as Western Canada.

In the opinion of their officials and travellers familiar with that country, the untaxing of buildings and personal property, recently effected in those provinces, has proved the deciding inducement. A letter from the Industrial Commissioner of Edmonton states: 'A most potent reason for the great building operations in the City of Edmonton is the fact that the single tax system is now in vogue in this city—and I confidently expect that the building permits for this year (1913) will reach $20,000,000.00.'"

I would urge every business man to examine the question for himself, apart altogether from party politics, for this is no party question, except in the sense that like all questions requiring legislative enactment it must be dealt with by Parliament. This is a question that can and does appeal to members of all political parties.

LAW REPORTS.

KING'S BENCH DIVISION.

(Before Mr. Justice SCRUTTON.)

Savill *v.* Acton Urban District Council: Allegations of Negligence Fail.

MR. JUSTICE SCRUTTON, in the King's Bench Division, on Saturday, July 26, delivered a reserved judgment in the action, which had been raised by Mrs. Jane Savill, owner of 63 and 65, Church-road, Acton, W., against the Acton Urban District Council, whom she blamed for damage to her premises, which had been used for many years for the purposes of a bakery and confectionery premises.

A *résumé* of the evidence on both sides has already been printed in the *Builder*.

Delivering judgment, his Lordship said that in this action Mrs. Savill sued the defendant Council either for negligence in allowing the escape of sewage into her premises from a drain, or for damage done thereby. He (the Judge) held that the plaintiff must prove (1) that the sewage issued on to her land, (2) through defendants' negligence, and (3) to the injury to her reversion. The evidence, his Lordship went on, was contradictory, and indicated that Counsel were not fully instructed as to the previous history of the premises, which had, it appeared, suffered from the presence of water during seventeen years. There was nothing to show the sewer had ever been obstructed. He was satisfied that, when tested with water pressure, it leaked, and that some of the leakage would find its way to the plaintiff's premises, but that it was never exposed to such actual pressure in actual work. He thought that the test was excessive and unfair, and that it was a test excluded by the Public Health Act. The tests by smoke and coloured water showed no trace of escape, from which it was evident that, under any use that might reasonably be expected, its contents did not find their way to the plaintiff's premises. Numerous witnesses for the defence had testified as to the nature of the soil and the presence of old cesspools, which would account for the presence of contaminated water in the low-lying bakehouse. He (the Judge) considered that the defendants had not been negligent, and that no sewage escaped in the ordinary course from the sewer—serving an adjoining school belonging to the Council as the education authority—to the plaintiff's premises. His Lordship added that if he had found negligence he should not have given anything like the damages claimed, as no allowance had been made in making the claim for the condition in which the premises had been shown by evidence to be in. Concluding, his Lordship said he entered judgment for the defendants with costs. Answering Counsel for the plaintiff, his Lordship said he saw no reason to grant a stay of execution.

OBITUARY.

Mr. J. B. Corby.

The death, on August 16, in his seventy-fifth year, is announced of Mr. Joseph Boothroyd Corby, F.S.I., member of Council, Society of Architects, Councillor and ex-Mayor of Stamford, member of Kesteven, Lincs., County Council, and principal partner of the firm of Messrs. J. B. Corby & Son, of Stamford, Uppingham, and Spalding, architects and surveyors. Mr. Corby was an articled pupil of Edward Browning, ecclesiastical architect. He was the architect of the Queen Victoria Diamond Jubilee Town Hall, Oundle (in competition), the Walter Martin memorial clock tower, Wainfleet, Lincs., and the Corn Exchange, Spalding (enlargement), 1897-9; the Baptist Chapel, Morcott, and Braunston Schools (mixed and infants'), Rutland; the cottage homes and almshouses, Spalding (1905-6), founded with the bequest of Samuel Kingston, F.S.I.; the cattle market, Oakham; reading-room, etc., Bainton, Northants; public swimming-baths, Spalding; Collyweston Schools; many houses in Spalding and Stamford; blocks of thirty-six cottages for the Spalding Urban District Council, built in 1912-13, at a cost of about £5,200; and the Baptist Chapel and blocks of cottages, Stamford. Mr. Corby was architect for the restoration of several churches; Milton Abbas Hospital, Dorset; Uppingham School (extensions); the late Baron de Hirsch's racing stables, with Grafton House, Newmarket; Westminster memorial hospital, Shaftesbury; the late Lord Rosslyn's town house; and for works upon the estates of the Earl of Westmorland, Marquis of Exeter, Lord Brownlow, Lord Lindsey, Sir Arthur Fludyer, etc., in Lincolnshire, Northamptonshire, Rutland, and the surrounding localities of the Midland shires.

Mr. G. H. Daymond.

An inquest was held at Blackpool recently on George Henry Daymond, architect, Oakland, South Benfleet, Essex, and later of Bootle, whose body was found on Blackpool Sands by John Coulton, a bathing van attendant. The jury eventually returned a verdict of "Found dead."

FOREIGN AND COLONIAL.

Building and Mining Material, South Africa.

H.M. Trade Commissioner for South Africa further reports that a firm of agents in Johannesburg and Rhodesia, in direct touch with the building trades, is open to consider agencies for building and mining material on behalf of United Kingdom firms. The name and address of the firm may be obtained by United Kingdom manufacturers on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C. Any further communications regarding the enquiry should be addressed to H.M. Trade Commissioner, Norwich Union Buildings, Cape Town.

Building Materials, China.

The following information is from the report by the British Pro-Consul at Canton (Mr. D. B. Walker) on the trade of that district in 1912, which will shortly be issued:—

The conditions were naturally all against any increase in the importation of building materials, and the figures dropped from £4,591 in 1911 to £1,741 in 1912. With a return to normal conditions, however, a revival can be confidently expected, and, given the execution of even a few of the many schemes for land development and city improvement which are on foot, a record trade may be looked for this year (1913).

PATENTS.

APPLICATIONS PUBLISHED.*

9,534 of 1912.—George Lewis Gilberthorpe and Hedley Charles Marshall: Adjustable fireproof blinds and louvres.

12,002 of 1912.—Sidney Barwise: System of heating buildings.

14,253 of 1912.—Bruno Zeidler: Windows.

17,307 of 1912.—Achille Knapen: System of ventilation.

17,460 of 1912.—Albert Stephen Mizen: Door-closing device for doors of buildings.

17,524 of 1912.—John Ernest Turner: Guards for domestic fireplaces.

18,373 of 1912.—Jean Frederic Paul Kestner and Henri Jean Emile Neu: Arrangement for ventilating and for moistening the atmosphere of premises.

19,359 of 1912.—Adalbert Hermann: Process of, and apparatus for, moulding or forming plastic materials.

23,161 of 1912.—Percy Alliott Smithurst: Door closing and checking mechanism.

23,559 of 1912.—Gustav Oberleithner: Manufacture of cement plates.

25,014 of 1912.—Thomas Thornton: Draught-excluders.

25,772 of 1912.—William Houlker: Means for operating and securing casement windows, fanlights, and the like.

26,187 of 1912.—Leon Rappaport: Road pavings.

27,464 of 1912.—Charles Edward Harrison: Spring operated device for preventing the shaking or rattling of doors, windows, and the like, particularly motor-car doors.

30,080 of 1912.—Emil Zuckerman: Invisible hinges.

249 of 1913.—Ludwig Pizinger: Sash-windows.

7,602 of 1913.—Herman Crouwel: Flooring, wall coverings, and the like.

8,799 of 1913.—Giulio Serrazanetti: Retaining walls for preventing landslips.

10,639 of 1913.—Henry Sidebottom: Cooking ranges.

11,963 of 1913.—Frederick William Golby: (Joseph Graef): Plasterers' trowels.

SELECTED PATENTS.

3,372 of 1912.—Adolf Panzenhagen: Ladder scaffolding.

This relates to movable stands for supporting ladders used in scaffolding, which are provided with sockets *d*, embracing the ladder sides, and arranged on fixed and adjustable

PATENTS—*continued on page 210.*

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number: Competitions, iv; Contracts, iv. vi. viii. x.; Public Appointments, xiv.; Auction Sales, xx. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

AUGUST 25.—**Tendring.**—COTTAGE HOMES.—The Guardians of Tendring Union invite designs, etc., for erection of a pair of cottage homes. Mr. A. J. Ward, Clerk to the Guardians, Harwich. See page 65 in issue of July 18 for further particulars, also "Competition News" this week.

SEPTEMBER 1.—**High Wycombe.**—TOWN PLANNING.—The Borough Council of High Wycombe invite schemes for the town planning of the borough. Premiums of £25, £10, and £5 respectively. Particulars from Mr. T. J. Rushbrooke, Borough Surveyor, High Wycombe.

SEPTEMBER 3.—**Wheatley Hill.**—The Board of Management of the Haswell Co-operative Provision Society, Ltd., invite competitive plans and estimates for the building of a new branch premises at High Wheatley Hill. Premiums of £25, £15, and £10 are offered for designs selected by the assessors. Particulars and copies of sketch plan can be obtained at the office of the General Manager, Haswell Co-operative Society, Ltd., Haswell.

OCTOBER 31.—**York.**—HOUSING AND TOWN PLANNING.—The Town Committee of the York Corporation invite architects and surveyors to submit for competition a scheme under the Housing and Town Planning Act, 1909, in connection with certain areas within and without the City of York. Premiums of £100, £50, and £25 respectively will be awarded. See advertisement in issue for July 18.

NOVEMBER 1.—**Sofia.**—DESIGNS FOR A ROYAL PALACE AND LAW COURTS.—**Particulars from the Commercial Intelligence Branch of the Board of Trade**, Basinghall-street, E.C. See page 173, August 9, and page 350, September 27, 1912; also page 708, June 20.

NOVEMBER 29.—**Folkestone.**—BAND PAVILION.—The Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff. See advertisement in issue for August 15, and "Competition News" this week.

NO DATE.—**Blackburn.**—NEW FIRE-STATION.—The Blackburn Corporation are to invite designs for a proposed new fire-station and firemen's dwellings. Competition limited to architects having an office within the borough. Premiums, £100, £50, and £25. Assessor is Mr F. G. Briggs, F.R.I.B.A. Apply Town Clerk, Town Hall, Blackburn.

NO DATE.—**Bradford.**—LAYING-OUT OF AN ESTATE, ETC.—The Council of the City of Bradford invite designs for the laying-out of an estate, and for the erection of workmen's dwellings. See advertisement in issue of July 25 for further particulars.

NO DATE.—**Coventry.**—The E.C. invite competitive sketch plans for the enlargement of Little Heath Council School. The competition is strictly limited to architects practising in the city of Coventry. Particulars of the competition may be obtained at the Education Office, 44, Bayley-lane, Coventry.

* NO DATE.—**Whitehall, S.W.**—NEW OFFICES FOR BOARD OF TRADE.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs for new offices for the Board of Trade, etc., in Whitehall-gardens. See advertisement in this issue for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

AUGUST 25. — **Pontefract.** — NEW DISPENSARY WARDS.—Contractors desirous of tendering for the various parts required to be done in the erection and completion of three new wards, nurses' quarters, etc., at the Pontefract Dispensary should send in their names to Mr. W. J. Tennant, architect and surveyor, Pontefract.

AUGUST 26. — **Keighley.** — ALTERATIONS. — Tenders are invited for internal alterations to the Education Offices. Further particulars from the Borough Engineer.

AUGUST 26.—**Plymouth.**—The Guardians of the Poor of Plymouth invite tenders for painters', carpenters', and masons' work required to be done at certain of the scattered homes. Mr. W. H. Davy, Clerk to the Guardians, Greenbank-road, Plymouth.

AUGUST 26.—**Rathmines.**—Construction of an underground public convenience at the junction of Rathmines and Rathgar roads, for Rathmines U.D.C. Specification, etc., at the Engineer's Offices, Town Hall, Rathmines. Deposit, £1 1s.

AUGUST 27.—**Cumnock.**—Contractors wanted to execute the mason, carpenter, slater, plumber, plasterer, and painter works of proposed workmen's dwellings in Cumnock. Specifications, etc., from the architect, Mr. John Arthur, I.A., 131, West Regent-street, Glasgow. Deposit, 10s. 6d.

AUGUST 27.—**Linlithgowshire.**—The West Lothian Housing Society, Ltd., invite tenders for the erection of houses on the garden city principle at Polkemmet, Bathville, and Bents, Linlithgowshire. Specifications, etc., of the Secretary, West Lothian Housing Society, Ltd., 109, Hope-street, Glasgow. Deposit, £1 1s.

AUGUST 27. — **London.** — The Metropolitan Asylums Board invite tenders for extension of washing-shed, etc., at the Brook Ambulance Station, Shooter's-hill, Woolwich S.E., in accordance with drawing and specification prepared by Mr. W. T. Hatch, M.Inst.C.E., M.I.Mech.E., Engineer-in-Chief. Specification, etc., at the Office of the Board, Embankment, E.C. Deposit, £1.

AUGUST 27.—**Trehafod.**—Rebuilding of the Wayne Morgan Constitutional Club, Trehafod, for the Committee. Plans, etc., of Messrs. A. O. Evans, Williams, & Evans, architects, Pontypridd. Deposit, £2 2s.

* AUGUST 27.—**Sheffield.**—NEW BUILDINGS.—Tenders are invited for *Sheffield Telegraph* buildings in High-street.

AUGUST 28.—**Birkenhead.**—The Corporation of Birkenhead invite tenders for the construction and erection of a block of buildings for the coal-gas plant, comprising a boiler-house with tall chimney, exhauster-house, power-house and annex, and a pump-house, together with other works, at the Gasworks, Thomas-street, Birkenhead. Specification, etc., at the office of the Gas Engineer, Thomas-street, Birkenhead. Deposit, £3 3s.

* AUGUST 28.—**Mile End, E.**—FLOORING, ETC.—The Guardians of the Hamlet of Mile End Old Town invite tenders for taking up hearths and stove plates and reinstating with flooring and parquet flooring to the wards at their infirmary.

AUGUST 29.—**Little Mill.**—The Managers invite tenders for the alteration and enlargement of the Monmouthshire Reformatory, Little Mill. Plans, etc., of Mr. G. E. Halliday, F.S.A., F.R.I.B.A., 19, Castle-street, Cardiff.

AUGUST 30. — **Edinburgh.** — COTTAGE ALTERATIONS.—The Edinburgh District Board of Lunacy invite offers for different trades for alterations on cottages on Farm-road, Bangour. Intending offerers must tender for the whole works. Relative schedules, etc., of Mr. James Kyd, Clerk and Treasurer, Chambers, Castle-terrace, Edinburgh.

AUGUST 30.—**Warrington.**—The Guardians invite building tenders for the erection and completion of a new imbecile and epileptic block, with attendant offices, at the Union Workhouse, Warrington. Quantities of the Clerk to the Guardians, Union Offices, Warrington. Deposit, £2 2s. The architects, Messrs. W. & S. Owen, Cairo-street, Warrington, will supply any information as regards the building work.

* SEPTEMBER 1.—**King's Langley.**—COUNTY COUNCIL SCHOOL.—The Hertfordshire E.C. invite tenders for the erection and completion of a new County Council School at King's Langley.

SEPTEMBER 1.—**Libanus.**—Erection of a public elementary Council school, to accommodate 550 children, at Libanus, near Blackwood, Mon., for the Monmouthshire Education Committee. Plans, etc., at the office of Mr. John Bain, F.R.I.B.A., C.C. Offices, Newport. Deposit, £2 2s.

SEPTEMBER 1.—**Maesteg.**—Erection and completion of new Council offices, etc., Talbot-street, Maesteg, and the covering over of part of the River Llynfi, adjoining, for the U.D.C. Plans, etc., of Mr. Samuel J. Harpur, at the offices of the Architect and Surveyor to the Council, 32, Commercial-street, Maesteg. Deposit, £1 1s.

* SEPTEMBER 1.—**Southampton.**—NEW SCHOOL.—The Southampton C.C. invite tenders for new council school at Headley.

SEPTEMBER 2.—**Mountain Ash.**—Erection of a mixed school for 480 children, with offices, boundary walls, etc., at York-street, Mountain Ash, for the Mountain Ash Education Committee. Plans, etc., of the Architect, Mr. W. H. Williams, M.S.A., Town Hall, Mountain Ash. Deposit, £2 2s.

SEPTEMBER 2.—**Westbury.**—The Directors of the Great Western Railway Company invite tenders for the construction of an engine-shed, etc., at Westbury, Wilts. Plans, etc., at the office of the New Works Engineer at Paddington Station.

SEPTEMBER 4. — **Alnwick.**—COTTAGE HOMES.—The Guardians of the Alnwick Union require tenders (single or whole) for the erection of two semi-detached cottage homes at Wagon Way-road, Alnwick. Specifications, etc., may be seen at the Board-room, 24, Fenkle-street, Alnwick. Mr. M. Temple Wilson, Architect and Surveyor, Alnwick.

* SEPTEMBER 4. — **Penmaenmawr.**—HOPPER.—The Penmaenmawr and Welsh Granite Company, Ltd., invite tenders for construction of a reinforced concrete hopper to store about 5,000 tons of crushed granite.

SEPTEMBER 5.—**London.**—The Commissioners of H.M. Works and Public Buildings are prepared to receive tenders for the erection of the Home Office Museum, Horseferry-road, London, S.W. Specification, etc., on application to Mr. H. A. Collins, Office of Works, etc., Storey's-gate, London, S.W. Deposit, £1 1s.

* SEPTEMBER 6. — **Torquay.** — BATHS. — The Torquay T.C. invite tenders for erection of medical and swimming baths.

SEPTEMBER 9.—**Isle of Wight.**—Erection of a depôt shed, size 60-ft. by 20-ft., to be constructed of brick walling and steel-framed and corrugated-iron roof. Plans, etc., at the office of Mr. A. S Lilley, Surveyor, Council Offices, Hyde-park, Ryde.

* SEPTEMBER 9.—**Moseley.**—POST-OFFICE AND TELEPHONE EXCHANGE.—The Commissioners of H.M. Office of Works, etc., invites tenders for the erection of Moseley new branch Post-office and Telephone Exchange.

SEPTEMBER 9.—**Old Shildon, etc.**—New Council school (for about 1,200 children) at Old Shildon; alterations and improvements at Middlestone Moor and Newbottle; removal of iron schools from Broom Cottages (Ferryhill) and Seaham Harbour, and re-erection at Fishburn and Bishop Auckland respectively, for C.C. of Durham. Plans, etc., as follows:—(1) For Old Shildon school, at the office of Mr. W. Rushworth, Shire Hall, Durham; (2) for Middlestone Moor, Newbottle master's house, and removal of iron schools, at the office of Mr. N. Richley, Shire Hall, Durham.

SEPTEMBER 10. — **Kirkburton.**—ASYLUM EXTENSION.—The Storthes Hall Asylum Committee invite whole or separate tenders for the work required in the erection of four chronic blocks at this asylum, situate at Kirkburton, near Huddersfield. Plans, etc., from Mr. W. E. H. Burton, A.M.Inst.C.E., Architect to the Board, the Asylum, Wakefield. Deposit, £1.

SEPTEMBER 10. — **Kirkburton.**—COTTAGES.—The Storthes Hall Asylum Committee invite whole or separate tenders for the work required in the erection of eight cottages in two blocks, at the Storthes Hall, Asylum, Kirkburton, near Huddersfield. Plans, etc., of Mr. W. E. H. Burton, A.M.Inst.C.E., Architect to the Board, the Asylum, Wakefield. Deposit, £1.

* SEPTEMBER 16.—**Kennington.**—KITCHEN, ETC.—The Lambeth Guardians invite tenders for alterations in connection with the provision of an additional kitchen at the Infirmary.

* SEPTEMBER 17.—**Tilbury.**—DWELLING-HOUSES.—The Essex C.C. invite tenders for the erection of three additional police dwelling-houses.

* OCTOBER 4.—**Guildford.**—ALTERATIONS, ETC.—The Surrey Territorial Force Association invite tenders for alterations and additions to the Drill Hall, Guildford.

NO DATE. — **Cononley.** — HOUSES.—Tenders invited for the masons' and bricklayers', plasterers', and slaters' works required to be done in the erection of four houses at Cononley. Plans, etc., on application to Mr. James Hartley, architect, Skipton.

NO DATE. — **Hunslet.** — Builders wishing to estimate for the erection of eleven cottage houses in Iveridge-grove, terrace, and road, Hunslet, can inspect plans and specifications at the offices of Mr George W. Atkinson, architect, 1, Marklane, Leeds.

* NO DATE.—**London.**—OFFICES.—The Hearts of Oak Benefit Society propose erecting additional offices, and invite builders to submit their names.

[Those with an asterisk (*) are advertised in this issue.]

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those wiling to submit tenders, may be sent in.

NO DATE.—**Wrexham.**—Workmen's dwellings at Wrexham. Plans, specifications, and quantities supplied on application to the Secretary, National Welsh Housing Pioneers, Ltd., 104, High Holborn, London, W.C.

ENGINEERING, IRON, AND STEEL.

AUGUST 25. — **Manchester.** — HEATING APPARATUS. — At the Deansgate and Liveseystreet branch libraries, for Manchester Corporation. Specification at the office of the City Architect, Town Hall. Deposit, £1 1s.

AUGUST 26.—**Doncaster.**—The Corporation of Doncaster invite tenders for the supply of a 20-ton hand crane for their electricity works. Particulars from the Borough Electrical Engineers' Office, Grey Friars-road, Doncaster.

AUGUST 27.—**Belfast.**—The Belfast Harbour Commissioners invite tenders for the construction of the metal work, skylight glazing, etc., in connection with a proposed shed extension at the north end of the York Dock, Belfast, in accordance with drawings, which may be seen at the office of the Harbour Engineer, Mr. W. Redfern Kelly, M.Inst.C.E., from whom specification, etc., may be obtained.

AUGUST 27.—**Poole.**—MACHINERY, ETC.—Tenders are invited by the Guardians of the Poole Union for the supply of a steam engine, machinery shafting, etc., for the laundry at the Workhouse, Longfleet, Poole. Specification can be seen on application to the Master of the Workhouse

AUGUST 28.—**Alnwick.**—The Alnwick U.D.C. invite tenders for providing and erecting unclimbable iron fence and gate around Swansfield Reservoir. Specifications, etc., from Messrs. Taylor & Wallin, Cathedral-buildings, Newcastle-on-Tyne, or Mr. J. Wightman Douglas, Bondgate, Alnwick.

AUGUST 30.—**Glasgow.**—Construction of:—(1) A tunnel under the Forth and Clyde Canal at Lambhill; (2) a tunnel under the Forth and Clyde Canal (Glasgow branch) at Glebe-street; (3) a tunnel in Borron-street; (4) a railway crossing or covered way at Glebe-street; and (5) the cutting of trenches and laying and jointing therein of 36-in. cast-iron pipes, for Glasgow Corporation. Specifications, etc., of Mr. J. R. Sutherland, Engineer, Water Department, 45, John-street, Glasgow.

SEPTEMBER 2.—**Ealing.**—Reconstruction and lengthening of Hanger-lane Bridge, Ealing, for Great Western Railway Company. Plans, etc., at the office of the Engineer at Paddington Station.

SEPTEMBER 10.—**Macduff.**—Harbour extension works for the T.C. Specification, etc., on application to the Town Clerk, at his office, Macduff, Banffshire, or at the office of the late Mr. W. T. Douglass, M.Inst.C.E., 15, Victoria-street, Westminster, London, S.W. Conditions of contract of Mr. A. W. Lewis, M.Inst.C.E., 15, Victoria-street, S.W. Deposit, £1.

SEPTEMBER 16.—**London.**—The L.C.C. invites tenders for the supply and erection of steam, exhaust and water piping in connection with high-class steam machinery in the new engine-house, etc., at Crossness. Specifications, etc., on application to the Chief Engineer of the Council, Mr. G. W. Humphreys, at the County Hall, Spring-gardens, S.W. Deposit, £3.

SEPTEMBER 16. — **Lothian.**—RAILWAY WORKS.—The Directors of the North British Railway Company are prepared to consider tenders for the construction of the Lothian lines authorised by the North British Railway Act, 1913. Drawings at the office of Messrs. Blyth & Blyth, civil engineers, 135, George-street, Edinburgh. Specification, etc., of Mr. John Cathles, Secretary, 23, Waterloo-place, Edinburgh. Deposit, £3.

✱ SEPTEMBER 24. — **Hammersmith.** — COAL STORAGE TANKS.—The Hammersmith B.C. invite tenders for construction of five coal storage tanks.

FURNITURE, PAINTING, MATERIALS, etc.

AUGUST 25. — **Fulbourn.** — The Committee of Visitors invite tenders for the outside painting of Fulbourn Asylum, Cambridgeshire. Particulars from the Architect, Mr. A. Paul MacAlister, F.R.I.B.A., 20, St. Andrew's-street, Cambridge. Deposit, £1 1s.

AUGUST 25. — **Leeds.**—PAINTING.—Tenders invited by the Improvements Committee for painting various bridges in the City of Leeds, and by the Markets Committee for painting the interior of Kirkgate Market, Leeds. Specifications, etc., of Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

AUGUST 25.—**Pontefract.**—PAINTING.—Tenders invited for cleaning, painting, and decorating the Assembly Hall. Specifications, etc., of Mr. J. E. Pickard, Borough Surveyor, Pontefract.

AUGUST 26.—**Dorset.**—Painting the whole of the exterior of the Dorset County Hospital. Specifications for the work at the hospital.

AUGUST 27. — **Harrogate.** — PAINTING.—The Committee of Management of the Royal Bath Hospital and Rawson Convalescent Home, Harrogate, invite tenders for the painting of the wood and iron work on the outside of these institutions. Mr. B. Shaw, Secretary.

AUGUST 27.—**Walthamstow.**—The Walthamstow U.D.C. invite tenders for the supply and delivery of about 6,500 tons of 5-in. wide by 4-in. deep granite setts. Specification, etc., from Mr. E. Morley, Surveyor to the Council, Town Hall, Walthamstow.

AUGUST 28. — **Blackley.** — PAINTING. — The Guardians of Prestwich Union invite tenders for painting and decorating in the administration block at the Booth Hall Infirmary, Charlestown-road, Blackley. Specifications on application to the Steward.

AUGUST 29.—**London.**—The Commissioners of H M. Works and Public Buildings are prepared to receive tenders for the supply of desks, filing cabinets, and pedestal tables. All particulars may be obtained on application to the Controller of Supplies, 18, Queen Anne's-gate, London, S.W.

AUGUST 29.—**Mickleover.**—The Committee of the Derby County Asylum invite tenders for the painting of two wards and part of the outside buildings, also distempering and limewashing. Specifications from Mr. A. McWilliams, Resident Engineer, Mickleover, Derby.

AUGUST 30. — **West Ashford.**—PAINTING.—The Guardians of West Ashford Union invite tenders for the external painting of the Workhouse buildings. Specifications can be obtained from Mr. A. E. Lacey, A.R.I.B.A., Architect and Surveyor, Ashford.

SEPTEMBER 1.—**Bromley.**—The Bromley R.D.C. invite tenders for the supply of road materials required during the year ending September 30, 1914, and for carting of materials and team labour. Mr. Edward Haslehurst, Clerk to the Council, Park House, Bromley, Kent.

SEPTEMBER 1.—**Middleton.**—The Corporation invite tenders for about 1,850 tons of granite setts and 80 tons of cement. Further particulars from Mr. W. Welburn, Borough Surveyor, Town Hall, Middleton.

SEPTEMBER 3.—**Littlehampton.**—Supply and delivery of 500 tons 1½-in. cube Guernsey granite and 100 tons ½-in. granite chips, for Littlehampton U.D.C. Mr. H. Howard, Town Offices, Littlehampton.

SEPTEMBER 9.—**Brighton.**—The Council invite tenders for the supply of dressed granite kerb and channel as under:—4,000-ft. run 12-in. by 6-in. granite flat kerb; 1,000-ft. run 12-in. by 6-in. granite flat channel. Specification, etc., at the office of the Borough Surveyor at the Town Hall, Brighton.

✱ SEPTEMBER 9.—**London.**—PAINTING, ETC.—The London C.C. invite tenders for painting works, etc., at Abbey Mill Pumping Station and at the Isle of Dogs Pumping Station, also at Western Pumping Station and King's Scholars Pumping Station, also for painting certain bridges

SEPTEMBER 10.—**Aberaman.**—The Directors of the Powell Duffryn Steam Coal Company, Ltd., invite tenders for the supply of stores, including bar and other iron, ironmongery, steel girders, channels and rails, nails, steel, cement, electrical goods, etc. Full particulars of the Stores Manager, Aberaman Offices, near Aberdare.

SEPTEMBER 16.—**Edinburgh.**—Tip-up chairs for the Usher Hall, at Lothian-road, for Corporation. Plans, showing the setting-out of the seating, may be seen at the Clerk of Works' Office, Usher Hall, Edinburgh, and at the office of the architects, Messrs. Stockdale, Harrison, Sons, & Thomson, F.R.I.B.A., Halford-chambers, Leicester.

✱ SEPTEMBER 24.—**Hammersmith.**—COAL HANDLING PLANT. — The Hammersmith B.C. invite tenders for the supply of certain coal handling plant.

ROADS, SANITARY AND WATER WORKS.

AUGUST 25.—**Durham.**—Sett paving, surface drain, and gullies in Back Mowbray-street. Specification of Mr. J. T. Pegge, City Surveyor, 60, Sadler-street, Durham. Deposit, 10s. 6d.

AUGUST 26.—**Great Crosby.**—The Great Crosby U.D.C. invite tenders for the making-up of Endbutt-lane, Great Crosby. Specifications, etc., on application to Mr. Joseph A. Wright, Surveyor, Council Offices, Great Crosby. Deposit, £1 1s.

AUGUST 27. — **Birmingham.** — ROADS.—The Public Works Committee of the City of Birmingham invite tenders for the reconstruction of a portion of Livingstone-road, King's Heath, and of a portion of Alexandra-road, Handsworth. Specifications, etc., of Mr. Henry E. Stilgoe, M.Inst.C.E., City Engineer and Surveyor, the Council House, Birmingham. Deposit, £2 for each tender.

AUGUST 27. — **London.** — The Metropolitan Asylums Board invite separate tenders for the following:—(1) Road repairing and tar-dressing work at the Northern Convalescent Fever Hospital, Winchmore Hill, N.; (2) road repairing work at the Brook Fever Hospital, Shooter's-hill, Woolwich, S.E., in accordance with drawings and specifications prepared by Mr. W. T. Hatch, M.Inst.C.E., M.I.Mech.E., Engineer-in-Chief. Specifications, etc., at the Office of the Board, Embankment, E.C. Deposit, £1 1s. each work.

AUGUST 28. — **South Shields.** — SEWERAGE WORKS.—The Borough of South Shields invite tenders for (1) the sewering of Derwentwater-lane and part of Laygate-lane; (2) the reconstruction of main sewer in Stainton-street and John Clay-street; and (3) the drainage of Sea-road and foreshore properties. Specifications, etc., at the offices of Mr. Leslie Roseverare, the Borough Engineer, Municipal Buildings, South Shields. Deposit, £2 2s.

AUGUST 29.—**Sheffield.**—EXCAVATIONS AND CONCRETE WORK.—The Electric Supply Committee of the City of Sheffield invite tenders for excavations and concrete work for the Electricity Supply Department. Specification, etc., of Mr. S. E. Fedden, General Manager and Engineer, Commercial-street, Sheffield. Deposit, 10s.

SEPTEMBER 1.—**Lancashire.**—Laying a concrete foundation and paving about 10,000 sq. yds. with granite cubes on the Blackburn, Whalley, and Clitheroe main road, for Lancashire C.C. Specification, etc., from Mr. W. H. Schofield, County Surveyor, County Offices, Preston.

SEPTEMBER 2.—**Heaton Norris.**—STREET WORKS.—The Heaton Norris U.D.C. invite tenders for the reconstruction of the carriageway with granited Limmer rock asphalt in (1) Tatton-road South (about 300 sq. yds.), and in (2) Tatton-road North (about 450 sq. yds.). Specification, etc., of Mr. Walter Banks, A.M.Inst.C.E., Surveyor to the Council. Deposit, £1 1s.

SEPTEMBER 2. — **Loughton.** — Making-up the Avenue, Uplands Park-avenue, Park-hill, Connaught-avenue, and Forest View-road, Loughton. Specifications, etc., of Mr. Horace White, the Council's Surveyor, High-road, Loughton. Deposit, £2 2s.

SEPTEMBER 3.—**Runcorn.**—Laying about 466 lin. yds. of 12-in. and 144 lin. yds. of 9-in. stoneware pipes, and the construction of manholes and adjunct works at Weston Point, near Runcorn, for the R.D.C. of Runcorn. Specification, etc., of Mr. Geo. F. Ashton, Clerk to the Council. Deposit, 10s.

SEPTEMBER 3.—**Southport.**—SEWERAGE WORKS.—The Corporation of Southport invite tenders for the construction of about 3,000 yds. of brick intercepting sewer, varying in size from 3 ft. 6 in. by 2 ft. 4 in. to 3 ft. by 2 ft., and other works appertaining thereto. Specification, etc., at the Borough Surveyor's Office, Town Hall, Southport. Deposit, £3 3s.

✱ SEPTEMBER 4.—**Hartley Wintley.**—SEWAGE DISPOSAL.—The Hartley Wintley R.D.C. invite tenders for sewage disposal works.

SEPTEMBER 4.—**Llysfaen.**—SEWERAGE WORKS.—The Conway R.D.C. invite tenders for excavating and refilling trenches and laying about 1,900 lin. yds. of stoneware pipe sewers, etc., in the parish of Llysfaen, in accordance with drawings and specification prepared by Messrs. T. B. Farrington & Son, civil engineers, Llandudno. The drawings may be seen at the offices of the engineers, from whom specifications may be obtained. Deposit, £2 2s.

SEPTEMBER 7.—**Neath.**—The R.D.C. invite tenders for the Resolven, Clyne, and Neath Lower Parishes distribution mains. Specification, etc., at the offices of the Water Engineer to the Council, Mr. D. M. Davies, M.Inst.M.E., Council Offices, Neath. Deposit, £3 3s.

SEPTEMBER 10.—**Bedford.**—Paving and road-making in Dudley-street, George-street, Rosamond-road, and York-street, for T.C. Specifications, etc., of Mr. N. Greenshields, A.M.Inst.C.E., Borough Engineer, Town Hall, Bedford.

SEPTEMBER 10.—**Dunstable.**—The Corporation invite tenders for the construction of a storm-water conduit, etc., in accordance with plans and specifications prepared by the Borough Surveyor. Deposit, £2 2s.

SEPTEMBER 10.—**Ogmore.**—The Ogmore and Garw U.D.C. invite tenders for the Gilfach Goch outfall sewer. Specification, etc., at the Council Offices, Brynmenyn, Glamorganshire. Deposit, £5 (not cheques).

SEPTEMBER 15.—**Wandsworth.**—Making-up and paving of that part of Downton-avenue, Streatham, which lies between the part of the road already paved and Normanhurst-road, for the Borough Council. Specification, etc., of the Borough Engineer, Mr. P. Dodd, M.Inst.C.E., at the Office of the New Streets Department, No. 56, East-hill, Wansdworth, S.W. Deposit, £5 5s.

✱ SEPTEMBER 16. — **Kennington.** — DRAINAGE WORK.—The Lambeth Guardians invite tenders for drainage work at the Infirmary.

NO DATE.—**Stanford.**—PAVING.—The Managers of Stanford School invite tenders for levelling and tar-spraying or asphalting the girls' playground. Particulars of the Rev. H. F. Smith, Stanford Rectory, near Hythe.

NO DATE. — **Yeovil.** — STREET WORKS. — The Yeovil Corporation invite tenders for street improvement in Kiddles-lane, and for the construction of new street from Middle-street to Earle-street. Specifications, etc., of Mr. A. Oddy, Borough Surveyor, Yeovil. Deposit, £1 1s.

Public Appointments.

✱ SEPTEMBER 1.—ARCHITECTURAL ASSISTANT.—The Stoke-on-Trent Corporation invite applications for the above post. Commencing salary, £150 per annum.

✱ SEPTEMBER 3.—CLERK OF WORKS.—The Twickenham U.D.C. invite applications for the above post at a salary of £3 5s. per week.

Auction Sales.

✱ AUGUST 27.—**London.**—Messrs. Churchill & Sim will sell by auction, at the Great Hall, Winchester House, Old Broad-street, E.C., an assortment of deals, battens, boards, timber, etc.

✱ SEPTEMBER 10. — **Hayes.** — Messrs Fuller, Horsey, Sons, & Cassell will sell by auction at the Marble and Slate Works, Hayes, a quantity of marble, stone, and slate working machinery.

✱ SEPTEMBER 16. — **Ware.** — Messrs. J. T. Skelding & Co. will sell by auction at the works, Baldock-street, Ware, a builder's stock and plant.

[Those with an asterisk (*) are advertised in this issue.]

ESTATES AND SITES NOTES.

The Near Suburbs.

LARGE areas of land in the old residential districts last developed about fifty years ago are now ready for redevelopment, and are waiting for the altered demands of the district to make the land once more earn its proper return. We refer to large derelict portions of the Portman Estate, the Bedford Estate, the land on the south of the Thames belonging to the Duchy of Cornwall and the Ecclesiastical Commissioners, also to parts of Dalston, Clapton, Islington on the north, and Kennington, Camberwell, and Newington on the south. All these must necessarily and within the next decade become transformed and rebuilt. Apparently, however, not in the same ordered settled manner as before, for, whereas formerly certain streets were reserved for residential purposes and restrictions imposed upon tenants, now it is possible to find motor garages next to churches, and warehouses, factories, dwellings, hospitals, etc., all in close contiguity. There may be more control than at first sight appears, but nevertheless the future of the near suburbs, once so highly respectable and prosperous, now so desolate and almost squalid, remains an anxious problem. If well regulated there is no reason why land so near the centre should not become covered with fine streets lined with fine buildings, of which a great proportion might be residential. Unfortunately, however, it costs little more to erect flats or hotels in more central positions, and, although the ground rents are higher, the rack rents obtainable are proportionately higher, and therefore until the centre is well developed the near suburbs must wait so far as good residential property is concerned.

The Return to the Roads.

On all sides we hear of new motor omnibus services between London and outlying towns, and also between the towns themselves, and no doubt this will continue until there are no two places of any importance unconnected by motor services. The Road Congress recently held in London emphasised several important facts, such as the necessity in England for a system of national roads and desirability of a different formation and curve to the road surface. Also as to gradients and by-pass roads, etc., all these will doubtless be adopted where possible.

Already a Bill has been presented dealing with national roads, and the Road Board deals daily with improvements to the surfaces of the main roads. With these changes all the old standards of value for residential property are becoming disturbed. Distance from station, formerly so potent a factor, now counts for little. Main thoroughfare houses, on the other hand, formerly so much appreciated, are becoming a drug in the market. The general tendency will be to equalise the land values and raise those now too low and lower those now too high.

The Revenue Bill.

The promised relief offered by this Bill has failed to be accomplished. The land group blame the Land Union and *vice versâ*. The dispute related to the clause whereby owners of agricultural property were to be allowed deductions in respect of improvements executed since 1879. The Opposition demanded deductions for all improvements whenever carried out. This would include such works as a sea wall erected last century or the canals in the Lincolnshire fens, and as it is not only the cost could be deducted but the actual increase in value of the land "directly attributable" to the expenditure, and, as land so protected or drained was formerly of no value at all, it would practically exempt all such land from taxation or duty, whether it exceeded £50 an acre or not. It certainly does not seem fair for an owner to have to pay undeveloped land duty on land reclaimed by his ancestors or which he has bought with due consideration for its improved value. The delay will give ample opportunity for the introduction of many much-needed additions which, owing to hasty presentation, were necessarily excluded from the abortive Bill.

TOWN PLANNING AND GOVERNMENT INTERNATIONAL BUREAU, BRUSSELS.

Under the conduct of the International Garden Cities and Town Planning Association, and the personal guidance of Mr. Ewart G. Culpin, a party of about twenty professors, city architects, mayors, and municipal delegates from Germany, Austria, Denmark, and Norway arrived in London on August 17, in order to visit Letchworth, Hampstead, and other garden cities and suburbs in this country. As an outcome of the recent Congress at Ghent, M. Emile Vinck, senator and chief of the municipal life section of the Congress, has founded a permanent International Bureau, which constitutes one of the 120 associations affiliated to the Union of International Associations, whose headquarters are in the Rue de la Régence. There will be sections for town planning, municipal life, and finance of municipal service and control. It is further intended to establish a complete town-planning and municipal life museum and exhibition after the manner of that initiated by Professor Geddes, and now to be seen in the Ghent Exhibition. Besides the models and plans gathered by Professor Geddes, the International Bureau will collect films and slides to illustrate urban and local life.

OFFICES FOR BRITISH COLUMBIA, LONDON.

In a few weeks the Hotel Capitol, once the Hotel Continental, will be demolished, and on the corner site, 1-3, Regent-street and Charles-street, S.W., will be erected a new building for the Province of British Columbia. The architect is Mr. Alfred Burr, F.R.I.B.A., Gower-street, W.C., who built the offices for the State of Victoria in Melbourne-place, Strand, adjoining which the building for the Commonwealth of Australia is being placed. The general contractors for the new building in Regent-street are Messrs. Holland, Hannen, & Cubitts, Ltd.

Messrs. DENSHAM & LAMBERT,

26, SAVILE ROW, W.,

NORTHWOOD and KINGSWOOD,

Will publish each week a short Register of City and West End Building Sites, of which they make a Speciality, having dealt with Town Sites to the value of £700,000 last year.

City and West End Building Sites to be Let, WITH FINANCES:

CONDUIT STREET.—Area 3,000 ft. Ground rent 5/- a foot.

CHARING CROSS ROAD.—Area 15,000 ft. Ground rent £1,500 per annum, with premium.

OXFORD STREET.—Area 10,000 ft. Ground rent 9/- a foot.

STRAND (just off).—Area 3,300 ft. Ground rent 3/- a foot.

WESTMINSTER (main road position). — Area 8,000 ft. Ground rent £600 per annum.

CAVENDISH SQUARE (facing).—Area 3,400 ft. Ground rent £650 per annum.

PORTMAN SQUARE (just off).—Large Site for Flats.

MANSION HOUSE STATION (almost adjoining).—Area 2,200 ft. Ground rent £250 per annum.

COUNTRY ESTATES.

WALTON HEATH, Surrey.

Almost adjoining famous Golf Links. High, healthy, and bracing. Choice woodland Sites for Sale or to be Let on Building Lease.

ELSTREE, Middlesex.

Only 11 miles from London, adjoining main line station. "Deacon's Hill Estate." Choice Sites for Gentlemen's Residences.

NORTHWOOD, Middlesex.

The fastest train service out of London. Building Sites for Sale or Houses Built to Purchaser's or Tenant's requirements.

Architects and Builders are asked to communicate with Densham & Lambert, who can arrange finances and mortgages on approved schemes.

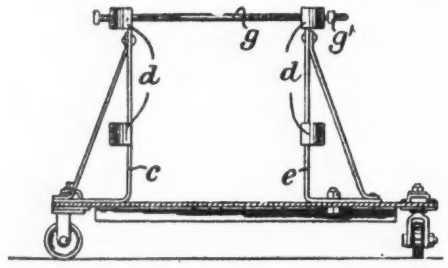
London Offices: **26, SAVILE ROW, W.**

TELEPHONES {42 MAYFAIR (2 lines). 5385 „

TELEGRAMS: "DENSHAMINE, LONDON."

PATENTS—*continued from page 206.*

members *c*, *e*. The members *e* are adjusted

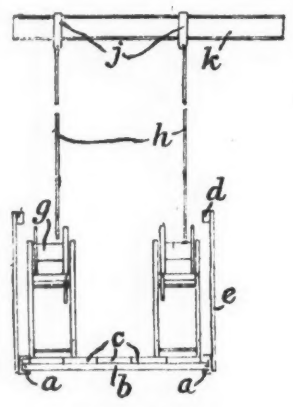


3,372 of 1912.

by nuts g^1 on screws *g*, and slide in slots in the bed-plates of the stands.

3,621 of 1912.—Edwin Thurnham Palmer and Edwin John Palmer: Builders' cradles.

This relates to suspended builders' cradles which are constructed of steel channel bars *a* connected by tie-bars *b*, to which the flooring

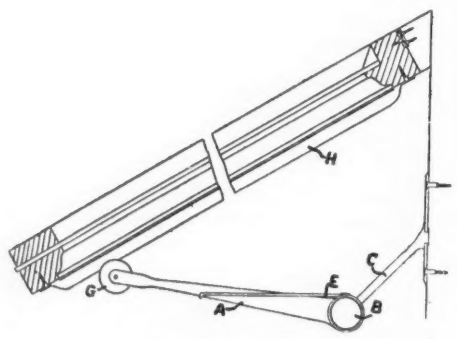


3,621 of 1912.

c is secured and handrails *d* connected to the channel bars by uprights *e*, and are raised and lowered by four independent winding drums *g*, operated by worm and worm-wheel gearing. The four suspension ropes *h* are attached to overhead beams *k* by straps *j*.

4,322 of 1912.—Edward Hotton and Claude Hamilton Harris: Opening apparatus for fanlights.

This relates to hinged windows which are opened when the fastening is released by a

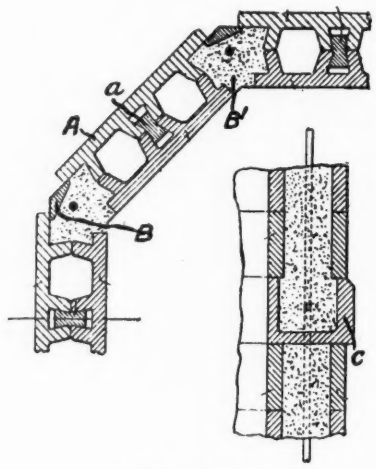


4,322 of 1912.

lever A mounted on a spindle B, which is fixed in a bracket C, and carries a coiled spring E, one end of which extends along and is turned under the lever A. The lever at its free end carries a pulley G, which works on a rounded rail H on the opening of the window.

4,423 of 1912.—Arnold England: Chimneys.

This relates to tapering hollow structures, such as high chimneys and towers, which are constructed of courses of blocks or slabs of uniform length of the type described in Specification No. 4,626/1910. The slabs A have strengthening ribs on one side and are spaced apart and connected by keys *a*. The inner edges of the slabs of each course overlap the slabs of the course below, so as to produce the taper, and the spaces between their ends are filled with concrete B^1. Junction pieces B are provided on the exterior and interior of the concrete columns B^1. At intervals courses of trough-shaped members C are built in the chimney, and the slabs above each course C can be shorter than those below. The troughs C are filled with concrete, and tie-rods are

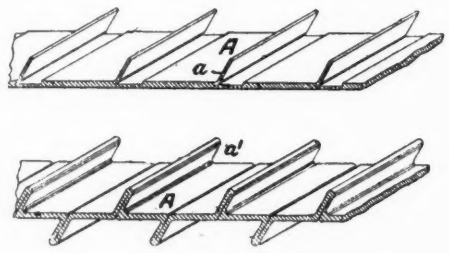


4,423 of 1912.

embedded in them and in the columns B^1. The lowest courses of the structure are filled with concrete.

4,424 of 1912.—Arnold England: Building blocks and slabs.

This relates to blocks or slabs such as are used for floors, roofs, walls, partitions, girders, trusses, beams, lintels, and doors generally erected *in situ*, which blocks or slabs are provided with a reinforcing and waterproofing member consisting of a sheet of metal or compressed paper having on one or both sides upstanding webs or fins extending throughout

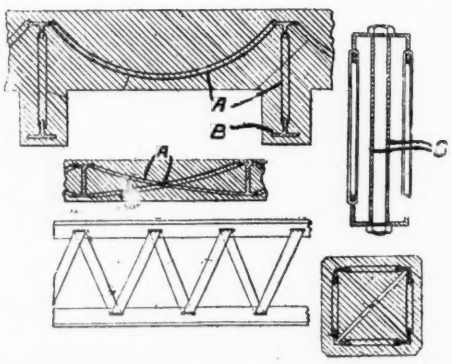


4,424 of 1912.

its length. The webs *a* are cut up from the sheet A by a cutting tool somewhat like a planing tool. The webs a^1 are formed by bending the sheets into kinks or loops and then rolling or pressing them together. The webs are not at right-angles to the sheet. In the case of ornamental facing bricks, slabs, or partitions thin sheets of metal are enamelled and decorated on one side and provided with raised webs or fins on the other side to key with the cement material.

5,154 of 1912.—James Dennis Roots: Steelwork and reinforced concrete.

This relates to a metal skeleton applicable alone for constructional steelwork or for use as a reinforcement in concrete, which is formed by lacing steel tape or wire A through slots or



5,154 of 1912.

holes in the flanges of bars B, which may be of angle, channel, T, or H section. When used without concrete the main bars are held apart by struts S. Floors are reinforced by two such girders connected by lacing together pairs of top and bottom flanges or top flange to opposite bottom flange.

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N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

PRICES CURRENT OF MATERIALS.

***** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.**

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	16	0
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.

	£	s.	d.		£	s.	d.
Flettons	1	14	0	Best Blue Pressed Staffordshire	3	15	0
Best Fareham Red	3	12	0	Do. Bullnose	4	0	0
Best Red Pressed Ruabon Facing	5	0	0	Best Stourbridge Fire Bricks	4	0	0
GLAZED BRICKS—							
Best White, Ivory, and Salt Glzd Str'tch'rs	12	7	6	Double Headers	14	17	6
Headers	11	17	6	One Side and two Ends	18	17	6
Quoins, Bullnose and 4½ in. Flats	15	17	6	Two Sides and one End	19	17	6
D'ble Str'tch'rs	17	17	6	Splays and Squints	17	7	6

Second Quality £1 10s. per 1000 less than best.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	9	,, ,,
Best Portland Cement	36	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 14s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE—Delivered on road waggons, Paddington Depôt	1	7½
Do. do. Delivered on road waggons, Nine Elms Depôt	1	9½
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, Delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	4½
White Basebed, Delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	6½

Per Ft. Cube, Delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks..	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6	Red Mansfield Freestone	2	4
Greenshill in blocks	1	10	Talacre & Gwespyr Stone	2	4
Darley Dale in blocks	2	4			
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	2	10
Per Ft. Super., Delivered at Railway Depôt.		
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7
1½ in. to 2 in. ditto, ditto	0	6
HARD YORK—		
Per Ft. Cube, Delivered at Railway Depôt.		
Scappled random blocks	3	0
Per Ft. Super., Delivered at Railway Depôt.		
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20 × 10 best blue Bangor	13	2	6	20 × 10 best Eureka unfading green	15	17	6
20 × 12 ditto	13	17	6	20 × 12 ditto	18	7	6
20 × 10 1st q'lity ditto	13	0	0	18 × 10 ditto	13	5	0
20 × 12 ditto	13	15	0	16 × 8 ditto	10	5	0
16 × 8 ditto	7	5	0	20 × 10 permanent green	11	12	6
22 × 10 best blue Portmadoc	12	12	6	18 × 10 ditto	9	12	6
16 × 8 ditto	6	12	6	16 × 8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000) ..	42	0	Best "Hartshill" brand, plain sand-faced (per 1000) .	45	0
Hip and Valley (per doz.) ..	3	7	Do. pressed (per 1000)	42	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	47	6
Do. Ornamental (per 1000)	52	6	Hip (per doz.) .	4	0
Hip and Valley (per doz.) ..	4	0	Valley (per doz)	3	6
Best Ruabon red, brown, or brindle (Edw'ds)(pr1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per1000)	45	0
Hip (per doz.) .	4	0	Hip (per doz.) .	4	0
Valley (per doz)	3	0	Valley (per doz)	3	6

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in...	15	0	0	..	16	10	0
Deals: best 3 in. by 9 in.....	15	0	0	..	16	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	12	10	0	..	13	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0		less than 7 in. and 8 in.		
Deals: seconds	1	0	0		less than best		
Battens: seconds	0	10	0		"		"
2 in. by 4 in. and 2 in. by 6 in.	11	10	0	..	12	10	0
2 in. by 4½ in. and 2 in. by 5 in.	10	10	0	..	11	10	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.....	0	10	0		more than battens.		
¼ in.	1	0	0		"		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5	0	0	..	6	5	0
Seconds	4	10	0	..	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	..	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	..	3	10	0
Swedish balks	2	12	6	..	3	0	0
Pitch-pine timber (30 ft. average)	6	0	0	..	7	0	0
JOINERS' WOOD.	At per standard.						
White Sea: first yellow deals, 3 in. by 11 in.....	26	0	0	..	27	0	0
3 in. by 9 in.	24	0	0	..	25	0	0
Battens, 2½ in. and 3 in. by 7 in.	18	10	0	..	19	10	0
Second yellow deals, 3 in. by 11 in.	21	10	0	..	22	10	0
" " 3 in. by 9 in.	20	0	0	..	21	0	0
Battens, 2½ in. and 3 in. by 7 in.	15	0	0	..	16	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	16	0	0	..	17	0	0
Battens, 2½ in. and 3 in. by 7 in.	14	0	0	..	15	0	0
Petersburg: first yellow deals, 3 in. by 11 in.....	23	0	0	..	24	0	0
Do. 3 in. by 9 in.	20	0	0	..	21	0	0
Battens	15	0	0	..	16	0	0
Second yellow deals, 3 in. by 11 in.	17	10	0	..	18	10	0
Do. 3 in. by 9 in.....	16	0	0	..	17	0	0
Battens	12	10	0	..	13	10	0
Third yellow deals, 3 in. by 11 in.	14	0	0	..	15	0	0
Do. 3 in. by 9 in.....	13	10	0	..	14	10	0
Battens	11	10	0	..	12	10	0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	16	10	0	..	17	10	0
First white deals, 3 in. by 9 in.	14	10	0	..	15	10	0
Battens	13	0	0	..	13	10	0
Second white deals, 3 in. by 11 in.	14	10	0	..	15	10	0
Second white deals, 3 in. by 9 in.	13	0	0	..	14	0	0
Battens	12	0	0	..	12	10	0
Pitch-pine: deals	25	0	0	..	26	10	0
Under 2 in. thick extra....	0	10	0	..	1	0	0
Columbian or Oregon Pine, best quality.....	23	10	0	..	26	0	0
Yellow Pine — First, regular sizes	50	0	0		upwards.		
Oddments	35	0	0		"		
Seconds, regular sizes.....	36	0	0		"		
Oddments	31	0	0		"		
Kauri Pine — Planks per ft. cube	0	5	6	..	0	6	6
Danzig and Stettin Oak Logs— Large, per ft. cube.....	0	3	0	..	0	3	9
Small " "	0	2	6	..	0	3	0
Wainscot Oak Logs, per ft. cube	0	7	6	..	0	9	0
Dry Wainscot Oak, per ft. super. as inch	0	0	10	..	0	1	2
¼ in. do. do.....	0	0	9	..	0	1	0
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0	0	10	..	0	1	3
Selected, Figury, per ft. super. as inch	0	1	6	..	0	2	6
Cuba Mahogany	0	1	4	..	0	2	6
Dry Walnut, American, per ft. super, as inch					upwards.		
French, "Italian," Walnut ..	0	0	10	..	0	1	2
Teak, per load (Rangoon or Moulmein)	0	0	10	..	0	1	4
Do., do. (Java)	20	10	0	..	26	0	0
American Whitewood planks, per ft. cube	19	0	0	..	22	10	0
Prepared Flooring, etc.—	0	5	6	..	0	6	6
1 in. by 7 in. yellow, planed and shot	Per square. 0	14	6	..	0	18	0
1 in. by 7 in. yellow, planed and matched	0	14	9	..	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	17	6	..	1	3	0

JOINERS' WOOD (*Continued*)—

Prepared Flooring, etc.—	Per square. £	s.	d.		£	s.	d.
1 in. by 7 in. white, planed and shot	0	14	0	..	0	16	0
1 in. by 7 in. white, planed and matched	0	14	3	..	0	16	6
1¼ in. by 7 in. white, planed and matched	0	16	6	..	0	8	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed boards.....	0	12	6	..	0	15	0
1 in. by 7 in. " "	0	15	0	..	0	18	6
¾ in. by 7 in. white ., "	0	12	0	..	0	14	0
1 in. by 7 in. " "	0	14	6	..	0	16	6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	9	0	0	..	10	0	0
Compound Girders, ordinary sections	11	0	0	..	12	0	0
Steel Compound Stanchions..	12	0	0	..	13	0	0
Angles, Tees, and Channels, ordinary sections.....	11	0	0	..	12	0	0
Flitch Plates	11	0	0	..	12	0	0
Cast Iron Columns & Stanchions, including ordinary patterns	8	10	0	..	9	0	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON— Common Bars	9	0	0	..	9	10	0
Staffordshire Crown Bars, good merchant quality ..	6	5	0	..	9	15	0
Staffordshire "Marked Bars"	11	0	0	..	—		
Mild Steel Bars	9	5	0	..	9	15	0
Hoop Iron, basis price	10	0	0	..	—		
" " Galvanised....	17	10	0	..	—		
(* And upwards, according to size and gauge.)							
Sheet Iron Black— Ordinary sizes to 20 g.	10	5	0	..	—		
" " 24 g.	11	5	0	..	—		
" " 26 g.	12	15	0	..	—		
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	..	—		
Ordinary sizes to 22 g. and 24 g.	16	0	0	..	—		
Ordinary sizes to 26 g.	17	0	0	..	—		
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18	10	0	..	—		
" " 22 g. and 24 g.	19	0	0	..	—		
Ordinary sizes to 26 g.	20	10	0	..	—		
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.	15	0	0	..	—		
Ordinary sizes, 22 g. and 24 g.	15	5	0	..	—		
Ordinary sizes, 26 g.	16	15	0	..	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0	..	—		
Best Soft Steel Sheets, 22 g. & 24 g.	13	10	0	..	—		
Best Soft Steel Sheets, 26 g...	15	10	0	..	—		
Cut Nails, 3 in. to 6 in.....	11	0	0	..	11	10	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Delivered in London. £	s.	d.		£	s.	d.
LEAD—Sheet, English, 4 lb. and up	24	5	0	..	—		
Pipe in coils.....	24	15	0	..	—		
Soil pipe	27	15	0	..	—		
Compo pipe	27	15	0	..	—		
ZINC—Sheet—	In casks of 10 cwt.						
Vielle Montagne	28	5	0	..	—		
Silesian	28	0	0	..	—		
Zinc, in bundles, 1s. per cwt. extra.							
COPPER— Strong Sheet ..... per lb.	0	1	1	..	—		
Thin " ..... "	0	1	2	..	—		
Copper nails..... "	0	1	0	..	—		
Copper wire..... "	0	1	0	..	—		
BRASS— Strong Sheet ..... "	0	1	0	..	—		
Thin ..... "	0	1	1	..	—		
TIN—English Ingots .. "	0	1	11	..	—		
SOLDER—Plumbers' .. "	0	0	10	..	—		
Tinmen's ..... "	0	1	1	..	—		
Blowpipe ..... "	0	1	3	..	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	2½d.	26 oz. fourths	4d.
" fourths	2d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	3½d.	Fluted Sheet, 15 oz.	3d.
26 oz. thirds	4½d.	" 21 oz.	4d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered

¼ Rolled plate	2½d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white..	3½d.
3/16 Rough rolled and rough cast plate..	2¾d.		
¼ Rough rolled and rough cast plate..	3d.	Ditto, tinted	5d.

* Not less than two crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	4
" " " in barrels	"	0	2	5
" " " in drums	"	0	2	7
Boiled " " in barrels.....	"	0	2	7
" " " in drums	"	0	2	10
Turpentine in barrels	"	0	2	5
" in drums	"	0	2	7
Genuine Ground English White Lead, per ton		30	15	0
(In not less than 5 cwt. casks.)				
Red Lead, Dry	per ton	28	0	0
Best Linseed Oil Putty	per cwt.	0	10	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish.....	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak.....	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	9
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	6
Extra Pale French Oil.....	1	1	0
Eggshell Flating Varnish.....	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper.....	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan.....	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	6
French and Brush Polish.....	0	10	0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 6 p.m. on Wednesday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ALNWICK.—For alterations and additions to Percy-place, for Mr. M. Pitt. Mr. A Davison, architect, Morpeth :—

Masons: C. Thompson & Co.*	£127 0
Plumbers: Wilkin & Dickman*	88 7
Joiner: R. Dodds*	52 0 0
Slater: T. Darling*	9 16 0
Painter and Glazier: A. Robertson*	9 8 0

[All of Alnwick.]

BLABY.—Making-up of Northfield-road, for Rural District Council :—

Stimpson & Rolleston, Leicester* £410

BLANDFORD.—For erection of first block of ten out of fifty-four cottages in St. Leonard's-avenue, for Blandford Housing Association. Messrs. G. Hunt & Sons, architects, Blandford :—

Elcock	£3,209	Francis	£2,455
Spiller	3,163	Guppy & Son	2,262
Norman & Sons	3,003	Burden Bros.	2,132
Jones & Seward	2,860	Penny.....	2,100
Wilson Bros.....	2,760	Bascombe, Broadstone*.....	2,000
Burt & Vick.....	2,700		
Jones & Sons	2,620		

BRIDLINGTON.—Bridge over Barmston drain, for Bridlington Rural District Council :—

B. Robinson, Hull* £326

BUCKINGHAM.—Engines, etc., at Sewage Works, for the Town Council :—

Tangye* £436

CHIPPING NORTON.—Rebuilding of bridge over main road from Rhynebill, for the Rural District Council :—

T. Burden, Chipping Norton* £109 15

CRAMLINGTON.—For paving back station-road, with approaches to and from Station-road, for the Urban District Council. Mr. W. J. Coulson :—

C. S. Bunch, 72, Fairfield-road, West Jesmond, Newcastle-on-Tyne* £250 15 5

DUBMILL.—For construction of about 520 yds. of concrete sea wall and apron, with timber piling, etc., from Maryport to Silloth. Mr. W. Finch, County Surveyor, The Courts, Carlisle :—

Middleton & Hopper.....	£7,510 14 0
J. Moffatt	7,494 6 9
J. W. Pearce & Co.....	7,411 9 0
H. J. Dologhan & W. Mulcaster ...	7,037 10 0
J. Dawson, Cleator*	6,775 18 6
R. C. Brebner & Co.‡.....	6,665 10 8

‡ Withdrawn.

GLASS HOUGHTON.—For branch stores and warehouse. Messrs. Garside & Pennington, architects, Pontefract. Quantities by architects :—

R. Walker & Son, Castleford* £1,200

GOSPORT.—Improvements of the Hard, for Gosport Urban District Council :—

Yorkshire Hennebique Co.* £2,600

HORSHAM.—For erection of a new infants' school and additions to All Saints' School, Roffey. Mr. Hadyn P. Roberts, F.R.I.B.A., County Education Architect :—

T. Ockenden & Son	£3,095	H. Lindfield & Son...	£2,880
H. Baker & Son	3,000	F. Sandell & Sons ...	2,875
Crosby & Co., Ltd.	2,990	Murrell Bros.	2,844
R. Cook & Son.....	2,987	Mitchell Bros.	2,790
A. Peskett & Co. ...	2,884	Rowland Bros., Horsham*.....	2,749
G. Potter	2,880		

HOYLAND.—Alterations at Hoyland Common Girls' School, for Education Committee :—

Roper & Sons, Sheffield* £800

LONDON.—For structural work at 67-69, King-street, Hammersmith, W., for Mr. W. Orton. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.

W. Lowe, Barnes, S.W. £132

LONDON.—For metal shop-front at 49-51. High-street, Harlesden, N.W., for Messrs. W. Lewis & Co. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C. :—

S. Haskins & Bros., Ltd..... £840

LONDON.—For metal shop fronts at 67-69, King-street, Hammersmith, W., for Mr. W. Orton. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35. High Holborn, W.C. :—

S. Haskins & Bros..... £805

LONDON.—For structural work at 49-51, High-street, Harlesden, N.W., for Messrs. W. Lewis & Co. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.:—

W. Lowe	£295
Lyne & Sons, Clapham, S.W.*	286

LONDON.—For structural work at Nos. 175-179A, Old-street, and 88, Bath-street, City, E.C., for Messrs. E. Bridgland & Co. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.:—

Jones Bros. (Tooting), Ltd.	£286

LONDON.—For structural work at 157, King-street, Hammersmith, W., for Messrs W. Phillips & Co. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.:—

Lyne & Sons	£250	W. Lowe	£180
Jones Bros. (Tooting), Ltd.*	185		

LONDON.—For mahogany shop-front at 157, King-street, Hammersmith, W., for Messrs. W, Phillips & Co. Messr. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.:—

J. Glover	£185	Jones Bros. (Tooting), Ltd.*	£135
W. Lowe	170		
Lyne & Sons	142		

LONDON.—For oak shop-front at 140, High-street, Stoke Newington, N., for Mr. T. B. Stephens. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.:—

S. Haskins & Bros., Ltd.	£447 0	Courtney, Pope & Co.	£383 0
Pollard & Co.	428 15	S. Jones & Co.*	380 0

LONDON.—For oak interior fittings, at 140, High-street, Stoke Newington, N., for Mr. T. B. Stephens. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.:—

S. Haskins & Bros., Ltd.	£739
Pollard & Co.	460
S. Jones & Co..	451
Courtney, Pope, & Co.*	433

LONDON.—For structural alterations and decorative work at the Welsh Calvinistic Methodist Chapel, Charing Cross-road, W.C. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C.:—

Lyne & Sons	£1,270	Griggs & Son, Cubitt Town*	£727
Parker & Sons	1,199		
W. Lowe	897		

LONDON.—For structural alterations and additions to premises, Nos. 486-488, Brixton-road, S.W., for Messrs. Moreley & Lanceley, Ltd. Messrs. T. Jay Evans & Son, M.S.A., architects and surveyors, 34-35, High Holborn, W.C. Quantities by Messrs. Gleed, Sons, & Co., 8 and 9, Martin's-lane, Cannon-street, E.C.:—

Griggs & Son	£6,666 10	W. Downs	£6,220 0
Holliday & Greenwood	6,666 0	Jarvis & Son	6,110 0
Simpson & Son	6,377 0	Falkener & Sons	6,083 0
Courtney & Fairbairn	6,287 0	Adamson & Son	5,929 0
Higgs & Hill	6,260 0	Parker & Sons, Peckham*	5,882 0

LOUTH.—Repair of front of Town Hall, for Corporation:—

C. H. Clark*	£115

NAAS.—For improvements at the Christian Brothers' School. Mr. Hall, Town Surveyor, Naas:—

J. Dawling	£312 18	P. Doyle	£293 0
T. Lendrum	294 0	D. Corcoran, Naas*	295 10
E. W. Warren	367 0		

NEWBIGGIN-BY-THE-SEA.—For an outfall sewer, for the Urban District Council. Mr. R. Appleby, Surveyor, Council Office, Newbiggin-by-the-Sea. Quantities by Surveyor:—

G. E. Simpson, Newcastle-on-Tyne*	£958 2 6

NEWBIGGIN-BY-THE-SEA.—For street improvement works, for the Urban District Council. Mr. R. Appleby, Surveyor, Council Office, Newbiggin-by-the-Sea:—

Cocks Bros., Blyth	£1,620

NORTH PRESTON.—Repairs, etc., to school buildings, for the Managers:—

Fuller & Sons	£270 0 0	Johnson & Sons	£228 7 6
Whiting Bros.	250 0 0		

[Referred to Kent Education Committee.]

NORTON.—Erection of cottages, for Thedwastre Rural District Council:—

Barbrook*	£1,069

PARK PREWETT.—Heating of proposed asylum buildings, for Hants County Council:—

Korting*	£15,833 19 3

PARK PREWETT. — Superstructure of asylum buildings, for Hants County Council:—

T. Rowbotham, Birmingham*	£258,777

PENYGRAIG.—For erection of a church, for Rev. D. H. Simon and Building Committee. Messrs. A. O. Evans, Williams, & Evans, architects, Pontypridd. Quantities by architects:—

Lloyd & Niblett	£3,200	W. Cox	£2,787
D. Davies & Sons	2,990	Knox & Wells, Cardiff*	2,477
C. Jenkins & Son	2,825		
Jones Bros.	2,893	A. W. Julian	2,388

PONTEFRACT.—For erection of shops, arcade, offices, etc. Messrs. Garside & Pennington, architects, Castleford. Quantities by architects:—

W. Marlow & Sons	£2,973 11	Lister Brook and others, Brighouse*	£2,397 7 6
Pickard & Co.	2,607 0		
W. H. Dews	2,547 0		

PORTSMOUTH.—Construction of rain-water storage tanks, for Board of Guardians:—

J. Crockerell*	£3,315

READING.—Private street works, for Corporation:—

E. Free & Sons, Maidenhead*	£1,155

SILLOTH.—Work on sea wall, for Hulme Cultram Urban District Council:—

J. Moffat, total, including groynes, £2,270 13s.; groynes, £573; balance, deducting groynes, £1,697 13s.

Doloughan & Mulcaster, total, including groynes, £3,293 2s. 9d.; groynes, £572 5s. 3d.; balance, deducting groynes, £2,720 17s. 6d.

R. C. Brebner & Co., total, including groynes, £2,182 13s. 5d.; groynes, £553 14s.; balance, deducting groynes, £1,628 19s. 5d.

J. W. Pearce & Co., total, including groynes, £2,734 3s. 3d.; groynes, £671 8s.; balance, deducting groynes, £2,062 15s. 3d.

[Consideration postponed.]

TAUNTON.—Alterations and additions to electricity works, for Corporation:—

Moggridge & Sons*	£399 10

TIVETSHALL.—For Tivetshall Rectory, Norfolk:—

W. H. Ludkin	£1,894 10	E. Baldwin	£1,675 0
J. Youngs & Son	1,785 0	E. J. Smith, Bunwell*	1,670 0
A. F. Rayner	1,707 0		

WHITLEY.—For completion of portion of the carriageway and footway, of Queen's-drive, on the Grosvenor Estate. Mr. A. J. Rousell, A.M.Inst.C.E., Surveyor, Council Offices, Whitley:—

G. Robson	£221 9 6	G. Armstrong, Whitley Bay*	£217 18 5
M. W. Young	217 10 0		

WIDNES.—For making-up Fairfield-road from Appleton-road to Greenway-road, for Widnes Corporation. Mr. J. S. Sinclair, A.M.Inst.C.E., Borough Surveyor, Widnes:—

S. Cowburn & Sons	£1,148 3 0
R. Allen, Widnes*	1,114 1 6

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